

SECTION 95

INTERIOR COMMUNICATIONS

<u>ITEM</u>	<u>PAGE</u>
1 95.1 REFERENCES	3
2 95.2 INTRODUCTION	3
3 95.3 GENERAL	4
4 95.4 COMMUNICATION AND ALARM SYSTEMS	5
5 95.4.1 SOUND POWERED TELEPHONE SYSTEMS	5
6 95.4.1.1 <i>Circuit "1JV", Selective Ringing Sound Powered Telephone System.....</i>	5
7 95.4.1.2 <i>Circuit "2JV", Emergency Maneuvering Jacks.....</i>	9
8 95.4.1.3 <i>Circuit "4JV", Emergency Onboard Communication System.....</i>	10
9 95.4.2 CIRCUIT "1MC", GENERAL ANNOUNCING	12
10 95.4.2.1 <i>Food Vending Area and Cafeteria Public Address.....</i>	14
11 95.4.2.2 <i>Circuit "2MC", Maneuvering Intercom.....</i>	15
12 95.4.2.3 <i>Circuit "3MC" Elevator Intercom</i>	16
13 95.4.2.4 <i>Circuit "A", Pilothouse Call.....</i>	16
14 95.4.2.5 <i>Circuit "B", Engineer's Call.....</i>	16
15 95.4.3 MULTI-COLORED ALARM INDICATION LIGHT BARS.....	16
16 95.4.4 CIRCUIT "G", ELECTRONIC BELL GENERAL ALARM.....	18
17 95.4.5 EMERGENCY GENERATOR CONTROL AND ALARMS	19
18 95.4.6 INTEGRATED PROPULSION SYSTEM CONTROL & MONITORING CIRCUITS.....	20
19 95.4.7 MAIN PROPULSION MACHINERY CONTROL AND ALARM SYSTEM.....	20
20 95.4.8 ENGINE ORDER TELEGRAPH SYSTEM	21
21 95.4.9 CIRCUIT "WD", SLIDING WATERTIGHT DOOR SYSTEM	21
22 95.4.10 FIRE SCREEN DOOR RELEASE SYSTEM	22
23 95.4.11 "FR" SHUTDOWN CIRCUITS	23
24 95.4.11.1 <i>Fire Release and Shutdown System Circuit</i>	23
25 95.4.11.2 <i>Machinery Ventilation Hi-Fog® Mist Systems Release Shutdown System.....</i>	24
26 95.4.11.3 <i>Engine and Fuel Systems Hi-Fog® Mist Systems Release Shutdown.....</i>	25
27 95.4.11.4 <i>Emergency Diesel Generator Hi-Fog® Mist System Release Shutdown.....</i>	26
28 95.4.11.5 <i>Paint Locker Hi-Fog® Mist System Release Shutdown.....</i>	26
29 95.4.11.6 <i>Passenger Deck Ventilation Shutdown.....</i>	27
30 95.4.12 STEERING AND RUDDER ANGLE INDICATOR SYSTEM	27
31 95.4.13 GYRO COMPASS SYSTEM	27

1	95.4.14	OWNER - FURNISHED EQUIPMENT (OFE) ALARM AND MONITORING SYSTEM.....	28
2	95.4.15	WHISTLE CONTROL AND FOG HORN TIMER SYSTEM	28
3	95.5	HOMELAND SECURITY VIDEO MONITORING AND DETECTION.....	29
4	95.5.1	GENERAL	29
5	95.5.1.1	<i>Introduction.....</i>	32
6	95.5.1.2	<i>Egress and Other Safety Rules</i>	33
7	95.5.1.3	<i>Maritime Security (MARSEC) Levels</i>	33
8	95.5.1.4	<i>Security System LAN (with Block Diagram).....</i>	34
9	95.5.1.5	<i>WSF Vessel Super-LAN.....</i>	37
10	95.5.2	PUBLIC SPACE SECURITY REQUIREMENTS.....	37
11	95.5.2.1	<i>Passenger Cabins</i>	38
12	95.5.2.2	<i>Weather Decks</i>	38
13	95.5.2.3	<i>Upper Vehicle Decks.....</i>	38
14	95.5.2.4	<i>Lower Vehicle Decks Outboard of the Machinery Casing.....</i>	38
15	95.5.2.5	<i>Vehicle Decks Inboard of the Machinery Casing.....</i>	39
16	95.5.2.6	<i>Restrooms.....</i>	39
17	95.5.2.7	<i>Stairtowers</i>	39
18	95.5.2.8	<i>Elevators</i>	39
19	95.5.3	HARDWARE, SOFTWARE, AND INTEGRATION.....	40
20	95.5.3.1	<i>Security System Equipment.....</i>	40
21	95.5.4	CONTROLLED ACCESS.....	42
22	95.5.4.1	<i>Spaces Requiring Intrusion Detection.....</i>	43
23	95.5.4.2	<i>Critical Access Spaces</i>	43
24	95.5.4.3	<i>Weather Deck Stairs Control.....</i>	43
25	95.5.4.4	<i>Cameras for Facial Recognition</i>	44
26	95.5.5	TESTING	44
27	95.6	CIRCUIT "CCTV"	45
28	95.7	SUPER-LAN/ SECURITY & SURVEILLANCE/ WIRELESS OVER WATER INSTALLATION.....	46
29	95.7.1	GENERAL REQUIREMENTS.....	46
30	95.7.1.1	<i>Work Scope Clarification.....</i>	47
31	95.7.2	INSTALLATION	51
32	95.8	WIRELESS INTERNET SERVICES SYSTEM.....	52
33	95.9	TELEPHONE SYSTEM CIRCUITS	52
34	95.9.1	CIRCUIT "J", PABX TELEPHONE SYSTEM.....	52
35	95.9.1.1	<i>System Capabilities.....</i>	53
36	95.9.1.2	<i>Individual Telephones.....</i>	54
37	95.9.2	TEMPORARY SHORE SIDE TELEPHONE LAY-UP CIRCUIT	59
38	95.10	ONBOARD EFS/RCS KIOSKS	59

1	95.11	HEATING AND VENTILATION CONTROL SYSTEM	60
2	95.12	SPARE PARTS AND INSTRUCTION MANUALS.....	60
3	95.13	TESTS, TRIALS AND INSPECTIONS	60
4	95.14	PHASE II TECHNICAL PROPOSAL REQUIREMENTS.....	61
5	95.15	PHASE III DETAIL DESIGN AND CONSTRUCTION REQUIREMENTS	61

6 95.1 REFERENCES

7 (95A) Code of Federal Regulations - 46 CFR Sub-chapter J

8 (95B) ASTM F1196, *Standard Specification for Sliding watertight Door Assemblies*

9 (95C) ASTM F1197, *Standard Specification for Sliding Watertight Door Control Systems*

10 (95D) **VOLUME V, OWNER - FURNISHED EQUIPMENT**

11 (95E) Code of Federal Regulations - 33 CFR Part 101 – *Maritime Security: General*

12 (95F) Code of Federal Regulations - 33 CFR Part 104 – *Maritime Security: Vessels*

13 (95G) USCG NVIC 4-02, *Security for Passenger Vessels and Passenger Terminals*

14 (95H) USCG NVIC 10-02, *Security Guidelines for Vessels*

15 (95I) Washington State Ferries Alternate Security Plan DTD December 30, 2003, amended
16 in June 2004

17 (95J) TIA/EIA 568 Rev B, Telecommunications Industry Assoc. (TIA) and Electronic
18 Industries Alliance (EIA) ~ *Commercial Building*
19 *Telecommunications Cabling Standards – Parts 1, 2, and 3*
20 *(including Addendums B.1-1, 2, 3, 4, 5, B.2-1, 2, 3, 4, 5, 6,*
21 *11, and B)*

22 95.2 INTRODUCTION

23 This Section defines Contractor Design and Provide general requirements for Interior
24 Communications (IC) Systems, including electric power, switches, bells, beacons and

strokes, sirens, horns, telephones, kiosks, indicators lights, sensors, power source copper-based network cable, fiber optic-based network cable, and other items and devices as are required to make complete, functional and fully operational IC Systems that allow for audible and visual communications throughout the Vessel.

IC circuits and alarms associated with centralized machinery control are described in Section 99 of the Technical Specification.

All interior communication cable shall be shielded or inherently immune to EMI (electromagnetic interference) and RFI (radio frequency interference).

For WSF Fleet-wide Standardization purposes, End No. 1 of the Vessel shall always be considered the bow, and this designation shall delineate port and starboard, fore and aft wherever they are addressed in the Technical Specification.

95.3 GENERAL

Circuits described herein shall be designed and provided as required by the Authoritative Agencies and as listed herein.

NOTE: The Vessels shall have an integrated surveillance camera and monitoring, access control, and intrusion alarm system security system which shall require security locks and access monitoring/control. See Sections 4, 12, and 21 of the Technical Specification for system requirements.

BE ADVISED: Attention to all antenna locations shall include environmental, interface/interference, security, safety, and aesthetic concerns to the design. All antenna locations shall be presented on a single drawing, and approved by WSF. See Phase III drawing requirements in Section 100 of the Technical Specification. WSF has developed a Co-Site Analysis Tool that will be used to check performance of proposed locations.

Refer to Section 93 of the Technical Specification for systems interface requirements.

ATTENTION: Prior to “powering up” any Owner - Furnished Equipment (OFE) interior communications cabinet, the Contractor shall present the completed installation to WSF for system and hook up checks. This check point shall be considered a major milestone “hold point” as

1 defined in the *Major Production Milestone Hold Points* Subsection in
2 Section 1 of the Technical Specification.

3 For WSF Fleet-wide Standardization purposes, all head sets where specified shall be DAVID
4 CLARK Model H5030, and all watertight storage boxes for headsets shall be lockable,
5 HOSE McCANN Model 2924.1.

6 For cable installation, identification and termination, see this Section and Section 87 of the
7 Technical Specification.

8 **95.4 COMMUNICATION AND ALARM SYSTEMS**

9 **95.4.1 Sound Powered Telephone Systems**

10 **95.4.1.1 Circuit “1JV”, Selective Ringing Sound Powered Telephone** 11 **System**

12 Design and provide a selective ringing Sound Powered Telephone System,
13 including phones, cabling, and other equipment in accordance with 46 CFR §113.
14 The system shall provide communications between all manned stations required
15 by the Authoritative. The system shall be wired for talking and ringing. The talk
16 circuit shall be run in a dedicated, shielded cable with 100-percent (100%) spare
17 conductors and shall be completely separate from the ringing circuit cable.
18 Talking and ringing circuits may be combined into one (1) MSCU multiple
19 conductor cable between the local terminal box and the phone; however, they
20 shall not utilize common conductors. Any call to the EOS/Chief’s Office (Station
21 No. 3) shall activate the “BLUE” lighted section of the alarm signal columns
22 located at all “**1JV**” station locations.

23 The system shall have magneto selective ringing units to allow each station to
24 selectively call any other station in the system. Position of switches contained
25 within each ringing unit shall be labeled to allow rapid selection of the station to
26 be called. Rotating beacon lights shall be provided in high noise areas where the
27 ringer may not be heard.

28 All sound powered telephones shall be wired through watertight terminal boxes,
29 to ensure that only one (1) cable penetrates each telephone enclosure. This shall
30 be accomplished by utilizing connection boxes for all telephones. All other
31 cables such as power cables for heaters and cables for auxiliary relay operated
32 beacons and audible devices shall be terminated inside the adjacent connection
33 box and carried into the telephone enclosure on one (1) cable.

1 The telephone units shall have at least nineteen (19) ringing circuits with only
2 fifteen (15) Stations installed initially. Use external bells for all Stations except
3 the first three (3). Number the Stations No. 1 through No. 14. The system shall
4 be wired for all 19 Stations with all necessary connections made to allow for the
5 addition of five (5) Stations at a later time.

6 Install “**1JV**” telephone sets as set forth in **TABLE 95-1** below:

TABLE 95-1 Circuit "1JV" Selective Ringing Sound Powered Telephone System	
Station No.	Location
1	Pilothouse No. 1
2	Pilothouse No. 2
3	Engineer's Operating Station/Chief Engineer's Office (two (2) phones on same circuit)
4	Engineer's Dayroom
5	Steering Gear Room No. 1
6	Steering Gear Room No. 2
7	No. 1 LVD End/Lookout
8	No. 2 LVD End/Lookout
9	Emergency Squad Locker - LVD
10	Crew Dayroom/Purser's Office - Passenger Deck (two (2) phones on same circuit)
11	Emergency Squad Locker - Passenger Deck
12	Emergency Diesel Generator Room
13	Master's Stateroom
14	Staff Chief Engineer's Stateroom
15	Unlicensed Crew Passageway - Sun Deck

For WSF Fleet-wide Standardization purposes, the equipment shall be manufactured by the HOSE McCANN TELEPHONE COMPANY, Incorporated, Deerfield Beach, Florida unless otherwise noted in this Section of the Technical Specification. The telephone sets are to be complete with bells and hand sets. If handset holders are not part of the telephone sets, provide handset holders at each Station. Replace the internal telephone station relays with externally mounted timed holding relays with an adjustable timed delay, for Stations No. 1, No. 2, No. 3, No. 5, No. 6, and No. 12.

Provide Stations No. 1, No. 2, and No. 3 with external audible devices. For Stations No. 1 and No. 2 provide phones with "BLUE" pilot light assembly lens for ring indicator on the telephone units. These pilot light assembly indicator lights shall stay activated until cleared by depressing a momentary push-button at the Station being called, or cleared by the timed adjustable holding relay.

Locate Station No. 1 and No. 2 in the Pilothouse Control Consoles, to the right when facing the End of the Vessel. Locate the handsets and holders immediately inboard of the telephone sets. Provide dimmable "RED" illumination for the selector switch and the associated label plate listing the Stations.

Locate Station No. 3 in the EOS Control Console and the Chief's Office. These telephones shall be fitted with a relay for actuating remote alarm/indicating lights as described below.

Provide flashing "BLUE" indicators on the Multi-colored Alarm Indication Light Bar in accordance with **TABLE 95-4** to annunciate "1JV" ringing. There shall be two (2) of these indicators in each Engine Room, one (1) for the EOS and Chief's Office, one (1) in each Steering Gear Room and one (1) in the Emergency Generator Room. When the "1JV" rings, in the EOS, the lights shall become active and shall stay activated in EOS, Chief Engineer's Office, Engine Rooms and in the Reduction Gear Rooms until cleared by depressing a momentary contact push-button at the EOS phone station, or cleared by the timed adjustable holding relay.

Provide flashing "BLUE" indicators on the Multi-colored Alarm Indication Light Bar in accordance with **TABLE 95-4** to annunciate "1JV" ringing. In the Steering Gear Rooms (Stations No. 5 and No. 6), when the "1JV" rings in the Steering Gear Room, those lights shall become activated and shall stay activated until cleared by depressing the momentary contract push-button at the phone station or cleared by the timed adjustable holding relay. In addition to the telephone sets, provide a separate watertight enclosure with a double-pole double throw (DPDT) rotary selector switch. The switch shall be wired to a telephone

jack complete with a screw on cover. One side of this switch shall be wired to the talk lines of Circuit “1JV”. Provide a sound powered headset, twenty (20) foot cord, and lockable, drip-proof storage box in each Steering Gear Room in addition to the telephone sets provided above.

Provide a sound powered telephone and sound suppression HOSE-McCANN Model 897, or equal, marine telecommunications acoustic booth in the Emergency Generator Room (for Station No. 12).

Provide watertight sound powered telephone stations at the Lower Vehicle Deck (LVD) Ends (Stations No. 7 and No. 8). Both the ringing unit and the associated handsets shall be provided with watertight protection. Watertight stations shall have the bell mounted external to the station's enclosure.

The LVD End phones shall be installed on the starboard side on End No. 1 and port side on End No. 2 of the Vessel near the location of the sewage pump out connections. These two (2) telephone sets mounted in weather areas shall be provided with internal heaters, fed from the Final Emergency Power source

For regulation purposes the LVD End stations are also considered to be the forward, or bow, lookout stations. The wiring to the LVD End stations shall run directly from the corresponding Pilothouse to the LVD End phone. A cut-out switch to isolate the phones from the rest of the stations shall be installed in each Pilothouse as required by 46 CFR §113. These switches shall disconnect both the talking and ringing circuits.

The LVD Emergency Squad Locker telephone (Station No. 9) shall be located inside the Emergency Squad Locker.

The Passenger Deck Emergency Squad Locker telephone (Station No. 11) shall be bulkhead mounted so as to be clear of the Emergency Squad Locker cabinet doors.

95.4.1.2 Circuit “2JV”, Emergency Maneuvering Jacks

In addition to the above telephones the Contractor shall provide “2JV” Sound Powered Telephone jacks, headsets, and headset storage boxes at the stations listed in **TABLE 95-2** below. The telephone jacks shall all be on a common circuit but shall be wired in a separate, dedicated shielded cable. The secondary circuit shall be utilized for Vessel maintenance purposes and shall be electrically

isolated from the “**1JV**” circuit. In each location provide a watertight jack box complete with screw on jack cover.

TABLE 95-2	
Circuit “2JV”	
Emergency Maneuvering Jacks	
Station No.	Location
1	Engineer's Operating Station
2	No. 1 Engine Room
3	No. 2 Engine Room
4	No. 1 Reduction Gear Room
5	No. 2 Reduction Gear Room

95.4.1.3 Circuit “4JV”, Emergency Onboard Communication System

The Contractor shall design and provide an Emergency Onboard Communication System that satisfies all requirements as prescribed in the International Convention for the Safety of Life at Sea (SOLAS) for a system to afford communication between the Navigating Bridge, EOS, High Slide Marine Evacuation System (MES) Stations, Rescue Boat Stations, and any other station normally staffed by a Crew member during an emergency. The system shall allow an Officer on the bridge to communicate with Crew members at the MES and Rescue Boat Stations to accomplish launching and other emergency procedures. The system shall afford two-way communication between all stations.

The Emergency Onboard Communication System shall consist of sound powered telephones at nine (9) locations. For WSF Fleet-wide Standardization purposes, the equipment shall be manufactured by the HOSE MCCANN TELEPHONE COMPANY, Incorporated, Deerfield Beach, Florida unless otherwise noted in this Section of the Technical Specification. The telephone sets at each Station are

to be complete with bells, handsets, handset holders, and heaters in “weather” areas. Provide phones at Stations No. 1 and No. 2 with ringing indicator ”RED” lights on the telephone unit. When Station No. 1 or No. 2 receives a call, these lights shall light on the Station being called and stay activated until cleared by depressing a momentary contact push-button at the Station being called.

Install the “4JV” sound powered telephone sets as set forth in **TABLE 95-3** below:

TABLE 95-3 Circuit “4JV” Emergency Onboard Communication System	
Station No.	Location
1	Pilothouse No. 1
2	Pilothouse No. 2
3	Engineer’s Operating Station
4	End No. 1, Port, High Slide Marine Evacuation Slide Station
5	End No. 2, Starboard, High Slide Marine Evacuation Slide Station
6	End No. 1 Rescue Boat
7	End No. 2 Rescue Boat

Locate Stations No. 1 and No. 2 on the left hand side of the Pilothouse Control Console (when facing the front of the Pilothouse). The handset and holder shall be installed on the console top immediately inboard of the telephone set. Provide

dimnable "RED" illumination for the selector switch and the associated label plate listing the stations. The dimmer may be the same dimmer used for the "1JV" circuit telephone described above.

Locate the EOS telephone (Station No. 3) as directed by the WSF Representative.

Locate Stations No.s 4, 5, 6, and 7 at suitable interference free, WSF approved locations in close proximity to its respective launching controls. The location selected shall afford the telephones protection from damage by Passengers and vehicles, and shall be subject to approval by the WSF Representative. Install each telephone approximately sixty (60) inches above the Lower Vehicle Deck (± 6 inches) where practicable. All telephones mounted in weather locations shall have internal heaters fed from the final emergency power source.

The Rescue Boat launching station telephones, with two-way headsets, jacks, and lockable water proof storage boxes (Stations No. 6 and No. 7), shall be provided and mounted either on the curtain plate, or on the outboard side of the enclosure bulkheads surrounding the Rescue Boat installation. If mounted on the enclosure bulkheads, the sixty (60) inch mounting height shall also be required. In all cases the telephone shall be readily accessible to the Crew member performing launching operations, but inaccessible to the public. EDWARDS SIGNALING & SECURITY SYSTEMS, 105 Series, AdaptaBeacon Adverse Location Signal, NEMA 4X, "RED" flashing LED cluster strobe light (300,000 peak candlepower) beacons shall be provided near each telephone to alert personnel the ring circuit has been activated.

The High Slide MES Station launching station telephones, with two-way headsets, jacks, and storage boxes (Stations No. 4 and 5), shall be provided and mounted on the inside of each MES Station immediately adjacent to the High Slide MES slide/raft unit. In all cases the telephone shall be readily accessible to the crew member performing launching operations. EDWARDS SIGNALING & SECURITY SYSTEMS, 105 Series, AdaptaBeacon Adverse Location Signal, NEMA 4X, "RED" flashing LED cluster strobe light (300,000 peak candlepower) beacons shall be provided near each telephone to alert personnel the ring circuit has been activated.

95.4.2 Circuit "1MC", General Announcing

For WSF Fleet-wide Standardization purposes, provide a complete Marine Public Address system as set forth below. The Public Address (PA) System Main Amplifier Cabinet, and five (5) remote control stations will be Owner - Furnished Equipment (OFE), with installation provided by the Contractor. The final system design shall meet

all 46 CFR §113 requirements as to the Contractor's Work. Final location of a combined PA System Main Amplifier/Central Exchange Cabinet, and remote control stations shall be approved by the WSF Representative during the Phase II Design stage of Work based upon the Contractor's design. WSF will assist the Contractor to obtain U.S. Coast Guard local approval of the system design and all installation drawings. The PA System shall provide audible coverage throughout the Vessel through speakers of sufficient number and located to suit the Contractor's design and meet Authoritative Agencies requirements. WSF has provided a PA System Main Amplifier Cabinet wiring drawing as part of Reference (95D).

There will be five (5) Zones for paging as follows:

- 1) Crew (except Staterooms and associated passageways).
- 2) Public
- 3) All spaces
- 4) Vehicle Deck only
- 5) All Call (with attenuator bypass and General Alarm override).

The system shall include the following features:

1. A design maximum wattage load of 75 Watts per circuit (Zone).
2. All interior speakers shall be SOUNDOLIER, or equal, eight (8) inch. Interior speakers shall be recess mounted in a manner which is durable and easily maintained.
3. Exterior horns shall be TOA, or equal.
4. The OFE main amplifiers and selection circuitry shall be in an OFE combined PA System Main Amplifier/Central Exchange Cabinet, which shall be pre-wired to accept the Vessel's **Contractor provided** speakers and interconnecting 2-wire, twisted, shielded pair wiring. The only PA System items external to the PA System Main Amplifier Cabinet shall be the OFE remote control stations with handset; and Contractor provided foundations, brackets, speakers, wireways, cable transits, and wiring. The inputs to the PA System shall be made through the OFE PA System control, and microphones.
5. Speakers with volume control shall be installed as required. These speakers shall allow General Alarms or Emergency Announcements to be broadcast at full volume.

6. The system shall have priority switching. The PA System inputs shall be divided into a minimum of three (3) levels of priority, to be determined at time of installation. The highest priority shall be given to the Pilothouse PA System inputs, which shall be capable of overriding announcements from all other stations, and shall be capable of overriding the General Alarm in order to make emergency announcements. See the *General Alarm Circuit "G"* Subsection in this Section of the Technical Specification).
7. The main amplifier in the OFE PA System Main Amplifier Cabinet shall receive electrical power from a Final Emergency Power source as required by 46 CFR §113.
8. WSF has provided an OFE PA System Main Amplifier Cabinet wiring diagram of the PA System Main Amplifier Cabinet and installed equipment as part of Reference (95D). Working in conjunction with WSF, the Contractor shall also provide a reduced size copy of the final internal wiring diagram to be laminated in clear plastic. Working in conjunction with WSF, the Contractor shall provide a laminated settings sheet with the final settings of every adjustable control. The Contractor shall affix a waterproof wiring diagram and waterproof settings sheet to the inside of the PA System Main Amplifier Cabinet door in accordance with Section 100 of the Technical Specification.

The Contractor shall provide all interconnecting wiring, final connections, junction boxes, speakers, mounting hardware, foundations, and other ancillary equipment as required to implement a complete and functional PA System installation.

ATTENTION: Prior to powering up any OFE interior communications cabinet, the Contractor shall present the completed installation to WSF for system and hook up checks. This check point shall be considered a major milestone "hold point" as defined in the *Major Production Milestone Hold Points* Subsection in Section 1 of the Technical Specification.

The Contractor shall provide for final testing and balancing of the system. The Contractor shall be responsible for all Shipyard Work, material and design modifications required to make the PA System intelligible at all locations.

95.4.2.1 Food Vending Area and Cafeteria Public Address

The Public Address (PA) System for making general announcements is part of the OFE PA System Main Amplifier Cabinet, and shall be provided within the Small Galley and Cafeteria areas.

The Contractor shall provide all interconnecting wiring, junction boxes, speakers, mounting hardware, foundations and final connections for a complete PA System installation.

Cabling for a future connection to the Vessels Public Address System shall be provided in the Small Galley and Cafeteria areas. The Food Service PA shall be wired so it can only be transmitted into the Small Galley and Cafeteria areas. Small Galley access to the PA System will be programmed to have the lowest priority and will be overridden by the other PA control systems. Cabling shall be routed to the overhead area of the Small Galley and Cafeteria areas near the bulkhead nearest the Vessel midship.

95.4.2.2 Circuit “2MC”, Maneuvering Intercom

For WSF Fleet-wide Standardization purposes, install an OFE WSF Communications Model BTBC 3 hands-off talk back intercom system, between both Pilothouses and the EOS. The system will be capable of continuous, or momentary keying from both Pilothouse Control Consoles and from the EOS Propulsion Control Console (PCC). Light emitting diode (LED) indicators at each station will indicate when the system is in operation and which station is in control. Any station will be capable of overriding any continuously keyed station by means of actuating the momentary contact switch. All three (3) stations will have volume control for their respective speakers. The main amplifier and control circuitry shall be located in the PCC and shall receive power from a final Emergency Power source. The horn speaker in the EOS shall be mounted on the PCC. WSF has provided an OFE Maneuvering Intercom wiring diagram as part of Reference (95D).

The Contractor shall provide all interconnecting wiring, final connections, junction boxes, jack boxes, speakers, mounting hardware, foundations, wireways, cable transits, and other ancillary equipment as required to implement a complete and functional Maneuvering Intercom System installation.

The EOS intercom will have the additional feature of a foot operated keying switch to allow hands free operation of the maneuvering intercom from the EOS. A “jack” shall be mounted in the toe rail of the PCC such that the foot switch can be plugged in for use, or removed and stowed when not needed.

There shall be an additional foot switch provided at the EOS log desk. There shall be additional speakers with volume control provided in the Workshop, Engineer’s Day Room, Engineer’s Locker Room, port Storeroom, and the Chief Engineer’s Office.

95.4.2.3 Circuit “3MC” Elevator Intercom

Install an OFE hands-free intercom system between each elevator and the EOS PBX telephone system. The system shall function such that when the “ENGINE ROOM CALL” button is pressed in the elevator car, it rings as an incoming call on the EOS PBX phone. At that point, two-way communication is established between the EOS and a hands-free talkback speaker in the elevator car.

95.4.2.4 Circuit “A”, Pilothouse Call

Provide a Pilothouse Call system that allows a push-button in each Pilothouse to sound a buzzer in the other Pilothouse. Provide momentary contact push-buttons for the Pilothouse call circuit, and mount them in the new Pilothouse Control Consoles. Provide Pilothouse buzzers with enunciation sound which is distinct and different from other annunciation sounds in the Pilothouse.

The call bell circuit shall be fed from the final emergency power supply.

95.4.2.5 Circuit “B”, Engineer’s Call

Provide an Engineer’s Call Circuit throughout the Engineering spaces, using pushbuttons installed on the EOS Control Console. Provide a minimum of two (2) sirens in each Engine Room, plus a separate horn in the Engine Room No. 2 SSDG acoustic enclosure, Engineer’s Dayroom, and the Engineers Workshop. Also, provide one (1) horn (each), in the port and starboard Engineer’s Stores, Crew Locker Room, both Reduction Gear Rooms, both Tank Rooms, and both Steering Gear Rooms. The tone of the horns shall be consistent in all spaces and distinctive from other horns installed for other systems. The horns shall be capable of adjustable volume.

This circuits “call” indication shall also be provided on an Alarm Indication Light Bar, as set forth in the *Multi-colored Alarm Indication Light Bar* Subsection in Section 95 of the Technical Specification and **TABLE 95-4** in this Section of the Technical Specification.

95.4.3 Multi-colored Alarm Indication Light Bars

Provide multi-colored light bars, EDWARDS SIGNALING & SECURITY SYSTEMS 102 Series Trilptical Stackable Status Indicator, LED, with selectable tone module, or equal, with colors as described in **TABLE 95-4**, at each location where a horn or siren is installed in both Engine Rooms, the Emergency Diesel

Generator Room, and any other area when high noise levels could prevent hearing an audible alarm. The colored lenses for the light bars shall have readily recognizable symbols on them that illuminate when the light comes on to identify what the light signifies. Power for this system shall be provided from the final emergency power system. Visual signal column lamp color for the Engineers Call Circuit "B" shall be "WHITE" as indicated on **TABLE 95-4** below:

TABLE 95-4 ENGINEERING SPACES Visual Alarm/Indicator Features		
Lens Color	Alarm	Location
GREEN	Hi-Fog® System Release	Engine Rooms Emergency Generator Room UVD Paint Locker
YELLOW	AMS Alarm	All Engineering Spaces
WHITE (Clear)	CKT "B" Engineer's Call	Engine Rooms ER No. 2 Generator Acoustic Enclosure Storerooms (P & S) Engineer's Day Room Workshop Crew Locker Room Tanks Rooms Reduction Gear Room Steering Gear Rooms

TABLE 95-4, cont'd ENGINEERING SPACES Visual Alarm/Indicator Features		
Lens Color	Alarm	Location
BLUE	"1JV" Ringing in EOS	EOS Engine Rooms Reduction Gear Rooms Steering Gear Rooms Emergency Generator Room
RED	CKT "G" General Alarm	"RED" flashing beacons in all Engineering Spaces. (Not part of light bars) See the <i>Circuit "G", Electronic Bell General Alarm</i> Subsection in this Section of the Technical Specification
ORANGE	CKT "J" PABX Telephone System	Engine Rooms Reduction Gear Rooms Emergency Generator Room

1 **95.4.4 Circuit "G", Electronic Bell General Alarm**

- 2 Provide General Alarm Contact Maker, HOSE-McCANN 24 Vdc or equal, switches at
 3 the Pilothouse Control Consoles and in the Emergency Generator Room. Provide an

additional latching contactor maker in the EOS. The contact makers shall be interconnected to initiate a General Alarm.

Unless specified otherwise in this Section of the Technical Specification, provide a "RED" flashing beacon, EDWARDS SIGNALING & SECURITY SYSTEMS 105 Series, AdaptaBeacon Adverse Location Signal, 8 joule (800,000 peak candle power) high intensity strobe LED cluster, with selectable tone module, or equal, in the Emergency Generator Room, both Engine Rooms (a minimum of two (2) each per Engine Room plus quantity to suit USCG requirements), two (2) in each Reduction Gear Room, one (1) in each Tank Room, one (1) in the EOS (300,000 peak candlepower), and one (1) in the Engine Room No. 2 SSDG acoustic enclosure (300,000 peak candlepower). Provide the same flashing strobe "RED" beacon quantities in all other locations, to satisfy U.S. Coast Guard requirements, where it may not be possible to hear the bells under all Vessel operating conditions. These strobe beacons shall be located so they are convenient for servicing. These strobe beacons shall be powered from the final emergency power source through relays powered from the general alarm system.

Provide a control contactor to silence the General Alarm System via an external switch provided from the Public Address System during emergency announcement override. (See the *General Announcing Circuit "IMC"* Subsection in this Section of the Technical Specification).

Provide WHEELLOCK Model MT-12/24 multitone electronic horns throughout Vessel to create a general alarm bell tone in accordance with USCG requirements. Provide all cable, junction boxes, and distribution panels to make this a completely functioning system.

95.4.5 Emergency Generator Control and Alarms

Design and provide an Emergency Generator Control and Alarm System in accordance with the Propulsion System Integration (PSI) Contractor's and the Ship's Service and Emergency Diesel Engine Contractor's Bid Support Documentation (see Reference (95D)) and 46 CFR §112. The Emergency Generator Alarm System shall be an integral part of the (OFE) PSI Contractor's Alarm and Monitoring System and shall utilize the (OFE) provided remote I/O located in the Emergency Generator Room connected for inputs, outputs, light, and audible annunciation.

The final emergency power system shall be an automatic starting diesel as the final emergency power source. The diesel shall be started from a 24Vdc dedicated starting battery as described in Section 96 of the Technical Specification. The Contractor shall utilize the (OFE) Ship's Service Contractor EGCP-3 module, located in the Emergency Diesel Generator Room to initiate the starting sequence when bus voltage on the Emergency Switchboard falls below 80-percent (80%) for a period of five (5) seconds as

described in Section 89 of the Technical Specification, and provide safety monitoring features while the diesel is running. Supply power for the (OFE) EGCP-3 module is from the Propulsion Control batteries described in Section 96 of the Technical Specification, via a circuit breaker installed in the (OFE) Ship's Service Diesel Generator Contractor's Local Engine Panel (LEP).

Refer to Section 89 of the Technical Specification for further discussion of the Emergency Diesel Generator controls.

The alternator set is to shut down automatically upon loss of lubricating oil pressure, over speed, or operation of the fixed Hi-Fog[®] Mist Fire Suppression System for the Emergency Diesel Generator Room. The Contractor shall provide and install Indicator lights interfaced to the (OFE) PSI Contractors Alarm & Monitoring System, in the Emergency Diesel Generator Room to show why the alternator set shut down.

95.4.6 Integrated Propulsion System Control & Monitoring Circuits

Install the (OFE) PSI Contractor supplied Propulsion Control and Monitoring Systems for the PSI Contractor's Main Propulsion System. All the Propulsion System Control and Monitoring Alarms are integrated into the (OFE) PSI Contractors Alarm & Monitoring System as specified in the *Main Propulsion Machinery Control and Alarm System* Subsection in this Section of the Technical Specification. The Contractor shall supply both Pilothouse Control Consoles, cables and foundations, and shall install the system as directed by the PSI Contractor's Bid Support Documentation.

These circuits "alarm" indication shall also be provided on an Alarm Indication Light Bar, as set forth in the *Multi-colored Alarm Indication Light Bar* Subsection and **TABLE 95-1** in this Section of the Technical Specification.

The Alarm & Monitoring System (AMS) light on the *Multi-colored Alarm Indication Light Bar*, shall interface to a dry contact provided by the (OFE) PSI Contractor supplied AMS system. The light shall illuminate whenever any AMS alarm is annunciated, and shall stay illuminated until the alarm is silenced by the Operator, at which time the light shall go out.

95.4.7 Main Propulsion Machinery Control and Alarm System

Provide and install cabling from the alarm sensors to the (OFE) PSI Contractor's Alarm and Monitoring section of the Propulsion Control Consoles according to all procedures specified in the PSI Contractor's Contract Bid Support (CBS) documentation. All cable terminations for the Alarm and Monitoring system will be made by the PSI Contractor.

1 Install all OFE propulsion equipment sensors and alarms as directed by the PSI
2 Contractor's Bid Support Documentation.

3 **95.4.8 Engine Order Telegraph System**

4 Install an (OFE) PSI Contractor supplied Engine Order Telegraph (EOT) system for the
5 transmission, receipt, and acknowledgement of commands for control of the speed of the
6 Vessel's propulsion machinery. The EOT System must be capable of transmitting engine
7 orders from each Navigating Bridge to the EOS. The EOS must be capable of
8 acknowledging engine orders. Install a PSI Contractor supplied EOT power failure
9 alarm in accordance with U.S. Coast Guard requirements.

10 The EOT shall be powered from the 24 Vdc Propulsion Control System power supply
11 system.

12 **95.4.9 Circuit "WD", Sliding Watertight Door System**

13 Design and provide the necessary circuits to monitor and control the sliding watertight
14 doors described in Section 4 of the Technical Specification.

15 The direct current (DC) electric motors shall receive power from their own dedicated
16 water tight door (WTD) power panel/UPS enclosure which, in turn, is supplied with 208
17 Vac single-phase power from the Emergency Power Switchboard. Power for the remote
18 control and indicator system shall be provided from the watertight doors UPS and shall
19 comply with 46 CFR §111.

20 Circuit breakers used for the sliding watertight doors shall be selected in accordance with
21 46 CFR §111.

22 Provide local control stations on each side of each sliding watertight door. See Reference
23 (95C).

24 Provide mechanical or electric indicators at the new watertight doors which satisfy U.S.
25 Coast Guard requirements.

26 Provide a dry-contact output on the UPS unit for use by the PSI Contractor's AMS to
27 indicate a low battery charge condition at the EOS.

28 A sliding watertight door status & remote control station shall be provided in each
29 Pilothouse. The installation shall comply with the requirements of References (95B) and

(95C), and meet the requirements of the U.S. Coast Guard. The local station shall have priority door control. The WTD status and remote control panel shall be manufactured by the WTD manufacturer.

Remote control of the sliding watertight doors shall be included in the Pilothouses and in the EOS. The control panels shall have status and alarm indicators. Additional discussions are included in Section 4 of the Technical Specification.

Final design of the remote control (mimic) panels for the Pilothouses and the EOS shall be subject to approval by the WSF Representative.

95.4.10 Fire Screen Door Release System

Design and provide a fire screen door holding circuit. See Sections 4 and 21 of the Technical Specification.

Remote release control of the fire screen doors shall be designed and provided in each Pilothouse.

Provide two (2) Master fire door release switches with drip-proof enclosures, and locate one (1) in each Pilothouse. Install the switches on the aft bulkheads of each Pilothouse. Provide nameplates identifying the switch, as the "Master Fire Door Release". These switches shall power all fire screen doors on the Vessel, and either switch shall be capable of closing all fire screen doors on the Vessel.

Provide fire screen door holding magnets, with integral release switches for the EOS and Chief Engineer's Office entry doors in the A-60 fire boundary in the Hold. Provide fire screen door holding magnets with integral release switches required on the Lower Vehicle Deck. The magnetic holdbacks shall release individually locally, or when the Master Switch, in either Pilothouse, is actuated.

Provide door holding magnets, with integral release switches for the Passenger Deck Men's and Women's Restroom fire screen entry doors. The magnetic holdbacks shall release individually locally, or when the Master Switch, in either Pilothouse, is actuated.

Provide magnetic holdbacks for the non-fire rated doors, on the Passenger Deck Ends, leading to the Passenger loading areas on the Pickleforks. Each group of doors will be controlled by a local momentary switch, located at each door, and shall also be capable of being released by actuating a Pilothouse release switch, similar to the stairwell doors. Provide a selector switch in each Pilothouse Control Console, and a latching relay, to control the Passenger Deck End doors. These switches shall actuate the relay, enabling

or disabling the Passenger Deck End door magnets. When the magnets are enabled, the pilot-light in the selector switch shall be illuminated. The Passenger Deck End magnetic hold backs, on both Ends of the Vessel, shall be able to be closed as a group, by either the Passenger Deck End door release switch in each Pilothouse, or by the Pilothouse master switches. Provide a nameplate adjacent to the abovementioned selector switch inscribed:

**"WHEN ILLUMINATED - PASSENGER DECK END DOORS
MAY BE HELD OPEN".**

All holding magnets shall be provided with self aligning armature plates.

All holding magnet coils shall be equipped with Metal Oxide Varistors, across the coils, to provide voltage clamping.

Each grouping or sub-group of magnets shall utilized separate contacts on the Pilothouse master switches, with separate cabling to minimize voltage drop.

Provide electrical interlock switch circuits at the top of all magnetic holdback doors equipped with power activation door closers such that when the doors are pushed in contact with the holdbacks, the power activation door closers' power automatically de-energizes and when the magnetic holdbacks are released, power is automatically restored to the power activation closers. See the *POWER ACTUATION DOOR SYSTEMS* Subsection in Section 21 of the Technical Specification.

95.4.11 "FR" Shutdown Circuits

See the *SQUARE D POWERLINK® LIGHTING AND REMOTE CONTROL SYSTEM* Subsection in Section 92 of the Technical Specification for Powerlink® system requirements.

95.4.11.1 Fire Release and Shutdown System Circuit

Provide a fire release system that meets the requirements of the U.S. Coast Guard. This system shall provide automatic and manual means of shutting down all required equipment. Plans shall be developed and submitted to the WSF Representative for approval **before** submittal to the Authoritative Agencies.

The entire "FR" Fire Release system shall be divided into groupings based on location (i.e. common or adjacent fire zones, etc.) and function (i.e. equipment performing similar operations, etc.), and labeled by individual circuit numbers. These "FR" circuits may be grouped with other "FR" circuits, forming functional

blocks, which may be actuated by a common device, such as a break glass switch or a signal from a pressure operated switch in the Hi-Fog[®] mist systems discharge piping. The individual “FR” circuits will retain their circuit integrity, even though tripped by a common device. Typical equipment to be shut down, shall include ventilation fans, automatic closing ventilation fire dampers, automatic closing fire curtains, lube oil and fuel oil transfer pumps, fuel oil purification systems, oil-fired hot water heater, and as identified by the WSF Representative.

For spaces provided with either manual or automatic extinguishing systems, the release of Hi-Fog[®] will actuate a pressure operated switch and automatically activate the corresponding FR circuits. The pressure switches shall be 3PDT, rated at 15 Amp and 24 Vdc. Provide flashing “GREEN” visual indicators on the signal light columns in spaces having Hi-Fog[®] mist systems in addition to alarms (see the *Multi-colored Alarm Indication Light Bars* Subsection in this Section of the Technical Specification). These visual indication light columns shall be activated by the respective spaces “FR” circuit.

Provide break glass shutdown stations for the “FR” circuits serving the machinery in the holds. Locate these stations at the top of the ladders from the Hold Deck. These switches should be placed adjacent to the Hi-Fog[®] mist systems remote pull cable stations. Provide maintained rotary switches, one (1) for each Engine Room, on the EOS Control Console for the “FR” circuits serving the machinery in the Holds.

Provide break glass shutdown stations for the “FR” circuits serving the ventilation in the Holds. Locate these stations at the top of the ladders from the Hold Deck. These switches should be placed adjacent to the Hi-Fog[®] mist systems remote pull cable stations. Provide maintained rotary switches, one (1) for each Engine Room, on the EOS Control Console for the “FR” circuits serving the machinery in the Holds.

Provide circuits for the electrically powered ventilation fire dampers. Connect the dampers to the appropriate ventilation shutdown system, so that actuating the ventilation system “FR” circuit, also causes the fire dampers to close. See Section 12 of the Technical Specification for a description of how Hold Level fans and fire dampers are controlled from the HVAC electronic control system.

95.4.11.2 Machinery Ventilation Hi-Fog[®] Mist Systems Release Shutdown System

The “FR” system shall provide remote shutdown of the machinery ventilation system and fire dampers shall be provided as required by regulations. Provide

circuits for each Hold Deck End that, when activated, will cause all of the supply and exhaust fans in that End to stop and close any automatic fire dampers. This circuit shall be actuated by release of Hi-Fog[®] mist systems to the Engine Rooms, or by activation of the break glass switches located at the upper stair landings of the ladders leaving the Hold Deck. Additional discussions are included in Section 64 of the Technical Specification.

The “FR” system shall provide remote shutdown of the Emergency Diesel Generator Room ventilation system and fire dampers shall be provided as required by regulations. Provide circuits for the space that, when activated, will cause all of the supply and exhaust fans in that space to stop and close any automatic fire dampers. This circuit shall be actuated by release of Hi-Fog[®] mist systems to the Emergency Diesel Generator Room, or by activation of the remote break glass switches. Engine and Fuel Systems Hi-Fog[®] mist systems release shutdown.

95.4.11.3 Engine and Fuel Systems Hi-Fog[®] Mist Systems Release Shutdown

The “FR” system shall provide circuits for the Engine Rooms, that when activated by release of Hi-Fog[®] mist systems to an Engine Room via a pressure actuated switch, will cause, in the affected Engine Room, the Oil-fired Hot Water Heater oil burner to shut down, and the “GREEN” light in the signal light column to flash (see the *Multi-colored Alarm Indication Light Bars* Subsection 95.4.3 in this Section of the Technical Specification above). It shall also cause the Fuel Oil Transfer Pump, and Fuel Oil Centrifuge to stop if they are located in the affected Engine Room. The Fuel Oil Transfer Pump and Fuel Oil Centrifuge may also be stopped by using the break-glass switches located at the upper stair landings of the ladders leaving the Hold Deck.

NOTE: The set of the alarm tone audible during release of the Hi-Fog[®] system in any Engine Room shall be set distinctively different than the tone indicating release of the Engine Room Hi-Fog[®] mist system local application system, UVD Paint Locker Hi-Fog[®] mist system, or Emergency Generator Room Hi-Fog[®] mist system.

Remote operators for the electrically actuated fuel supply valves for emergency remote shutdown of the diesel engines and other fuel units shall be provided near the exit from the Engine Rooms.

This circuits “alarm” indication shall also be provided on an Alarm Indication Light Bar, as set forth in the *Multi-colored Alarm Indication Light Bar* Subsection and **TABLE 95-4** in this Section of the Technical Specification.

95.4.11.4 Emergency Diesel Generator Hi-Fog[®] Mist System Release Shutdown

The “FR” system shall provide a circuit for the Emergency Diesel Generator Room that will, when activated, cause the Emergency Diesel Generator engine to stop. It shall also cause the “GREEN” light, in the signal light column, in that space to flash (see the *Multi-colored Alarm Indication Light Bars* Subsection in this Section of the Technical Specification) and the electrically powered ventilation damper to close. This circuit shall be activated by the release of the Hi-Fog[®] mist system in the Emergency Generator Room, via a pressure actuated switch.

NOTE: The set of the alarm tone audible during release of the Hi-Fog[®] system in the Emergency Diesel Generator Room shall be set distinctively different than the tone indicating release of the UVD Paint Locker Hi-Fog[®] mist system, Engine Room Hi-Fog[®] mist system, or Engine Room Hi-Fog[®] local application mist systems.

This circuits “alarm” indication shall also be provided on an Alarm Indication Light Bar, as set forth in the *Multi-colored Alarm Indication Light Bar* Subsection and **TABLE 95-4** in this Section of the Technical Specification.

95.4.11.5 Paint Locker Hi-Fog[®] Mist System Release Shutdown

The “FR” system shall provide a circuit and a signal light for the UVD Paint Locker. Locate the light adjacent to the Paint Locker. The circuit when activated, will cause the exhaust fan to the paint locker to stop and the signal “GREEN” light to flash. This circuit shall be activated by the release of the Hi-Fog[®] mist system to the Paint Locker, via a pressure actuated switch.

NOTE: The set of the alarm tone audible during release of Hi-Fog[®] in the UVD Paint Locker shall be set distinctively different than the tone indicating release of any other Hi-Fog[®] mist system.

This circuits “alarm” indication shall also be provided on an Alarm Indication Light Bar, as set forth in the *Multi-colored Alarm Indication Light Bar* Subsection and **TABLE 95-4** in this Section of the Technical Specification.

1 **95.4.11.6 Passenger Deck Ventilation Shutdown**

2 The “FR” system shall provide a circuit with a maintained guarded push-button
3 switch in each Pilothouse, that when activated, will cause all supply, exhaust, and
4 re-circulation fans serving the Passenger Deck to stop. The ventilation shutdown
5 switch should be placed near the Fire Screen Door release switch in each
6 Pilothouse, on the aft bulkhead. See Section 12 of the Technical Specification for
7 a description of how HVAC fans and fire dampers are controlled from the HVAC
8 electronic control system.

9 The “FR” system shall be designed and installed to be fail-safe.

10 **95.4.12 Steering and Rudder Angle Indicator System**

11 Steering and rudder angle indicator systems shall be provided.

12 Install two (2) independent steering control systems as set forth in the *ROTARY STEERING*
13 *GEAR AND STEERING SYSTEMS* Subsection in Section 81 of the Technical Specification.
14 The system and installation shall comply with all requirements of 46 CFR.

15 Provide a Rudder Angle Indicator System for each rudder, which complies with
16 46 CFR §111 and Section 95 of the Technical Specification, including, electric power,
17 display units, senders, wiring, connectors, hangers, switches, and other items and devices
18 as required to make a complete, functional, and fully operational rudder angle indicating
19 system. The Rudder Angle Indicator System shall be independent of the steering control
20 and Steering Gear system and Steering Failure Alarm System.

21 Additional discussions and requirements are included in Sections 81 and 94 of the
22 Technical Specification.

23 **95.4.13 Gyro Compass System**

24 Provide all circuits to support the gyrocompass provided in Section 94 of the Technical
25 Specification.

95.4.14 Owner - Furnished Equipment (OFE) Alarm and Monitoring System

Install an OFE PSI Contractor Alarm and Monitoring System that will monitor and display parameters (levels, pressures, flows, temperatures, etc.) of machinery, tanks, compartments, and various other systems. Locate system in the EOS. The system will interface with Vessel sensors, transducers, and switches, and provide audible and visual alarms when operating parameters are exceeded. See the PSI Contractor's Bid Support Documentation with Appendix A - Alarm and Monitoring System Alarm Points List, in Reference (95D).

The system shall be a microprocessor based data acquisition and alarm system with separate input parameters. It shall be designed to collect, store and interpret sensor data, reference stored alarm limits, activate external enunciators, and distribute data to multiple displays, as required.

The Contractor is responsible to provide all cabling for the system installation. Adjust all sensors that are not preset by the factory to initial settings prior to Dock or Builder's Trials.

Refer to Section 71 of the Technical Specification for a complete list of tanks and the tank level indication and monitoring requirements.

Additional discussions pertaining to the Alarm and Monitoring System are described in Section 71 of the Technical Specification.

95.4.15 Whistle Control and Fog Horn Timer System

A suitable electric solenoid control system shall be provided, in addition to the manual controls described in Section 15 of the Technical Specification. An electronic timing device shall be included to sound the fog signals required.

Provide a Navigational Whistle control system in each Pilothouse. Install a Navigational Whistle push button on the center panel of each Pilothouse Control Console. Install push buttons at each drop sash window in the mullions for the whistle on that respective End of the Vessel. Provide power from the Emergency Power Distribution System and connect all three (3) push buttons so that any switch on that End can operate the Navigational Whistle.

Provide a HENSCHEL (Model No. 60-236) Automatic Whistle Timer System, or equal, in each Pilothouse Control Console. This device shall take it's internal power from the

1 Emergency Power Distribution System and will be wired in parallel with the three (3)
2 push buttons.

3 Provide heat tape and the associated electrical circuit around any component that may
4 freeze during winter conditions, such as the abovementioned whistle solenoid valve if it
5 is exposed to freezing temperature to prevent valve from sticking open or render the
6 system inoperative due to ice build-up.

7 **95.5 HOMELAND SECURITY VIDEO MONITORING AND DETECTION**

8 **95.5.1 General**

9 WSF, under the requirements and direction of the “Final Rule implementing the Maritime
10 Transportation Act, Title 33, Subchapter H; inclusive of: 104 – Vessel Security, will
11 require the Contractor to equip each Vessel with an integrated surveillance camera and
12 monitoring, access control, and intrusion alarm system integrating the camera video
13 surveillance, intrusion alarm system and access control, and WSF Local Area Network
14 (LAN) as set forth in this Section of the Technical Specification.

15 Design and provide an integrated surveillance camera and monitoring, access control,
16 and intrusion alarm system security system that will provide video/monitoring coverage
17 as set forth in this Section of the Technical Specification. The design shall include
18 surveillance cameras to monitor Vehicle and walk-on Passenger loading/offloading,
19 intrusion alarms on doors and emergency escape/access hatches and integrate with video
20 monitoring system and electronic access system, and the installation of an integrated
21 surveillance camera–electronic door lock and intrusion detection system to monitor and
22 control access points to Vessel restricted areas.

23 WSF will make available to qualified Proposers, when requested in writing, the following
24 WSF Drawings for Issaquah Class Vessels M/V ISSAQUAH and M/V SEALTH are
25 available as an amplifying sample illustration of a similar design effort:

26 1. WSF Drawing No. 8000-639-095-01 ~ *HOMELAND SECURITY TYPICAL*
27 *WIRING DIAGRAM STANDARD (latest revision)*

28 2. WSF Drawing No. 8000-639-095-02 ~ *HOMELAND SECURITY PLAN*
29 *TYPICAL FOUNDATIONS STANDARD (latest revision)*

30 3. WSF Drawing No. 8306-639-095-01 ~ *M/V SEALTH, HOMELAND SECURITY*
31 *PLAN (latest revision)*

4. WSF Drawing No. 8306-639-095-02 ~ *M/V SEALTH, HOMELAND SECURITY CABLING & WIRING DIAGRAM (latest revision)*

5. WSF Drawing. No. 8301-642-095-01 ~ *M/V ISSAQUAH, SUPER-LAN/SECURITY & SURVEILLANCE/WIRELESS OVER WATER INSTALLATION (latest revision)*

6. WSF Drawing No. 8301-661-094-01 ~ *M/V ISSAQUAH, ANTENNA ARRANGEMENT (latest revision)*

WSF takes Homeland Security very seriously and all such information will be made available on a “need-to-know” basis only, when requested and approved in writing, and shall be handled in a secure fashion by the Contractor, meeting all requirements of the *SENSITIVE SECURITY INFORMATION (SSI)* Subsection in Section 1 of the Technical Specification.

The Contractor shall work closely with WSF and it’s security contractors to provide a security video monitoring and intrusion detection system which meets the requirements of WSF, the Port Security Grant Project Manager, 46 CFR, and 33 CFR. The Contractor shall, early-on, after meet with the WSF Representative to open a dialog to produce an approvable Homeland Security Plan specific to the Vessel design. The complete monitoring design requires review and approval by WSF prior to installation onboard the Vessels.

Final location of cameras and motion detectors shall be the responsibility of the Contractor and shall provide the most complete view of the space being observed. Final location of cameras shall be subject to approval by the WSF Representative.

For bidding purposes, WSF will furnish for the installation, those items indicated (OFE) on WSF Drawing No. 8306-639-095-02 ~ *M/V SEALTH, HOMELAND SECURITY CABLING & WIRING DIAGRAM (latest revision)*. In concert with WSF Security Representatives, the Contractor shall design and provide an approved system installation, to include all other equipment, cable, wireways, foundations, penetrations, hangers, and ancillary parts and components to produce a complete and operable system. The Contractor shall produce Vessel arrangement drawings in a timely fashion, and make them available to WSF to allow the WSF Security Representatives, working with the Contractor, to locate cameras, motion detectors, ancillary parts and components to suit the monitoring requirements on the Vessel. The Server space shall require a Contractor provided air conditioning system.

BE ADVISED: Based on previous installations of this type of system on other WSF Vessels, the design of the Homeland Security Video Monitoring and Detection system will require certain fine adjustment to camera and motion detector final foundation locations to suit the as-built configuration of the Vessel. Installation of monitoring equipment does not lend itself well to "zone outfitting" construction methods, and the Contractor will need to, for planning purposes, schedule a minimum of a two (2) – three (3) month installation window for outfitting the system after assembly of the Vessel's major structure. The Contractor shall provide, as part of his bid, budget and schedule on the first Vessel for "fine adjustment" relocation of up to twenty-five-percent (25%) of the cameras and motion detectors installed on the Vessel. "Fine adjustment" relocation, for this Sections purposes, is defined as moving a camera or motion detector location within a four (4) foot radius zone around the originally WSF approved designated location. Once the locations are set on the first Vessel, the Contractor shall use those same "final" locations for all subsequent Vessels under this Contract. Generally, WSF discourages changes in follow-on Vessels under this Contract. Should the Contractor find it necessary make a running design change on the first Vessel or subsequent Vessels for it's own purposes, all camera and/or motion detector relocations shall be as designated by the WSF Security representatives to suit monitoring requirements and include all drawing revisions to suit such relocations. Such required relocations shall be at the sole expense and schedule of the Contractor.

All cameras shall be in self contained enclosures that are weathertight, corrosion resistant housings, each supplied with internal heaters.

Any cameras located near the Upper and Lower Vehicle Deck overheads shall be mounted as close to the overhead structure as possible so as not to inhibit Vehicle clearance. Cameras **shall not** extend below the bottom of the deepest beam in the overhead of that specific Vehicle Deck area.

Electrical power for the video system shall be from the Vessel's normal electrical power distribution system through a 120 Vac/24 Vac transformer. Electrical power shall be installed in a "daisy chain" style from camera to camera. Each camera requiring a 120 Vac/24 Vac transformer shall have the transformer placed adjacent to the camera location in a weather tight box. Electrical power shall be hard wired into the transformer primary. Secondary power from a transformer to the camera shall be hard wired inside the transformer enclosure. "Outlet" type connections are not acceptable on transformer hookups. Transformers shall be fused on the primary side, both legs. Cable from the

power source to a transformer primary shall be LSDSGU-9, or equivalent IEEE Std 1580-2001 cable, and from the transformer secondary to the camera shall be LSDSGU-4, or equivalent IEEE Std 1580-2001 cable. Electrical power for each system in EOS and Pilothouses shall follow the same distribution pattern; daisy chained receptacles and transformers at the location of the video controllers, monitors and video distributors.

95.5.1.1 Introduction

This Technical Specification provides guidance for the design of the WSF Fleet-wide Standardized Vessel Security System to meet the requirements of References (95A) through (95I). The Contractor shall note that Reference (95I) contains SENSITIVE SECURITY INFORMATION (SSI) and special arrangements must be made to review these documents. The Vessel Security System shall be fully compatible with the system being installed on other WSF Vessels and in the Terminals. A basic block diagram of the system is provided in the *Security System LAN (with Block Diagram)* Subsection in this Section of the Technical Specification. The Security System is an IP based system that allows the Vessel to communicate with the WSF Fleet-wide Standardized area network via a wireless link. The wireless link is provided by the Super-LAN installation in the *SUPER-LAN/ SECURITY & SURVEILLANCE/ WIRELESS OVER WATER INSTALLATION* Subsection in this Section of the Technical Specification. The system is capable of being monitored and updated both locally shipboard and remotely, from the WSF Operations Center, or any WSF network computer with proper authorization. The system shall operate on the “VIGILOS” software with components compatible with those listed in **TABLE 95-5**. It is understood that technology for components listed in **TABLE 95-5** is rapidly advancing and that these components may be superseded by the time of installation. Actual system design and components selection shall be submitted to the WSF Representative for review and approval prior to system installation or purchase of components.

The security system shall divide the Vessel into three (3) basic types of areas:

1. ***Critical Access Areas*** requiring doors with access control features (Pilothouses, engineering spaces and main security cabinet).
2. Areas where only Crew access is permitted. These will be referred to as ***Restricted Access Areas*** in this document.
3. Areas of General Public Access.

Normal access to ***Critical Access Areas***, Pilothouses, Engineering, and Main Security Cabinet spaces from the general public areas to shall be fitted with

electronic door locks, Proximity Card (Prox Card) readers, numeric keypads, and facial recognition cameras. The main security cabinet shall either be installed in an area requiring Prox Card and numeric keypad access or have this installed directly on the door to the space containing this equipment. The components for these devices shall be of similar make and model as those installed on other WSF Vessels (see **TABLE 95-5**, and WSF Drawing No. 8306- 639-095-02 (*latest revision*) for a sample installation on the M/V SEALTH).

Within the areas of restricted access, there shall be:

1. Simple keyed access. This includes spaces such as Crew Staterooms, storage lockers and Cleaning Gear Lockers.
2. Keyed access with Intrusion Detection. This includes areas such as Fan Rooms, Emergency Generator Room, and equipment rooms containing equipment and systems vital to the Vessel's safe operation (except security equipment) that we want to know when they are accessed.

All doors and access off of public spaces that do not fall into the categories above, and do not require public access (such as life jacket storage lockers) shall be fitted with key locks. This includes areas such as Small Galley area, Paint Locker, and storage lockers off of the Vehicle Decks. Door access to machinery spaces installed to support maintenance, but not used for day-to-day operations shall be fitted with key locks and intrusion detectors.

95.5.1.2 Egress and Other Safety Rules

Emergency egress and installed safety devices or required features shall not be impeded by the installation of the security system. The security system shall provide general surveillance of public spaces, prevent unauthorized access to Vessel control spaces and equipment, control and record access through critical doors, and notify both the Vessel workstation and WSF Operation Center of alarm conditions. The system must comply with all USCG and OSHA rules for safety.

95.5.1.3 Maritime Security (MARSEC) Levels

There are three (3) MARSEC **LEVELS** as defined by the U.S. Coast Guard.

- **LEVEL I** is the risk level for which protective measures must be maintained for an indefinite period of time; the every day security

measures. **LEVEL I** is equivalent to the Homeland Security Advisory System (HSAS) level “YELLOW”.

- **LEVEL II** is for a high security threat. **LEVEL II** is equivalent to the HSAS condition “ORANGE”.
- **LEVEL III** is for a severe security threat. **LEVEL III** is equivalent to HSAS condition “RED”.

95.5.1.4 Security System LAN (with Block Diagram)

The system to be installed consists of a main security equipment room and several remote security cabinets. There shall be a Vessel Security LAN that is completely independent from the WSF SUPER-LAN/ SECURITY & SURVEILLANCE/ WIRELESS OVER WATER INSTALLATION. See **FIGURE 95-1 Security Network Block Diagram**. WSF Drawing No. 8306-639-095-01 ~ *M/V SEALTH, HOMELAND SECURITY PLAN (latest revision)* shows a sample security plan for a similar size Vessel.

A central security equipment room (Security Office) is required. This space shall contain computer equipment, Information Technologies (IT) equipment, power supplies, and miscellaneous other equipment in a standard 19-inch rack with some equipment wall mounted. The location of the central security equipment room is independent of other shipboard systems but requires connection to the Emergency Power Bus, other security cabinets via fiber optic cable to be installed as part of the security system, and to a network switch in the Vessel LAN system with access to the wireless connection. The security equipment room shall be in a dry location suitable for electronics equipment. The space will have heat-generating equipment, which must be considered in developing HVAC load requirements for proper heating and ventilation of the space. Equipment to be installed in this space shall be rated to operate up to 50C degrees. Access to the security equipment room (Security Office) shall be via a door controlled by a WSF ID/Prox Card reader and keypad.

For WSF Fleet-wide Security Standardization purposes, the main security rack, will contain a Access and Video Management computer running the “VIGILOS” security software that WSF has selected to operate their security system, Video Storage Computers, a pan, tilt and zoom (PTZ) controller, de-multiplexers for the signals from the remote security cabinet multiplexers, a security system Local Area Network (LAN) Switch, and a host of power supplies and UPS’s. Each video storage computer can have up to six (6) video cameras connected to it.

1 Sufficient storage computers must be provided to store the video for all installed
2 cameras.

3 In addition to the main security cabinet, remote security cabinets shall be used as
4 required. These remote security cabinets shall be strategically located in critical
5 areas for controlling and monitoring electronic door locks; collecting and
6 transmitting video to the main security rack; providing low voltage power
7 supplies in close proximity to end use devices; and process inputs from intrusion
8 detectors and motion sensors. As a minimum a remote security cabinet shall be
9 located in each machinery casing to monitor respective access doors to machinery
10 spaces and vehicle deck cameras. See **FIGURE 95-1** for the representative
11 functional block diagram. Others remote security panels shall be located as
12 required to support Vessel layout and system configuration.

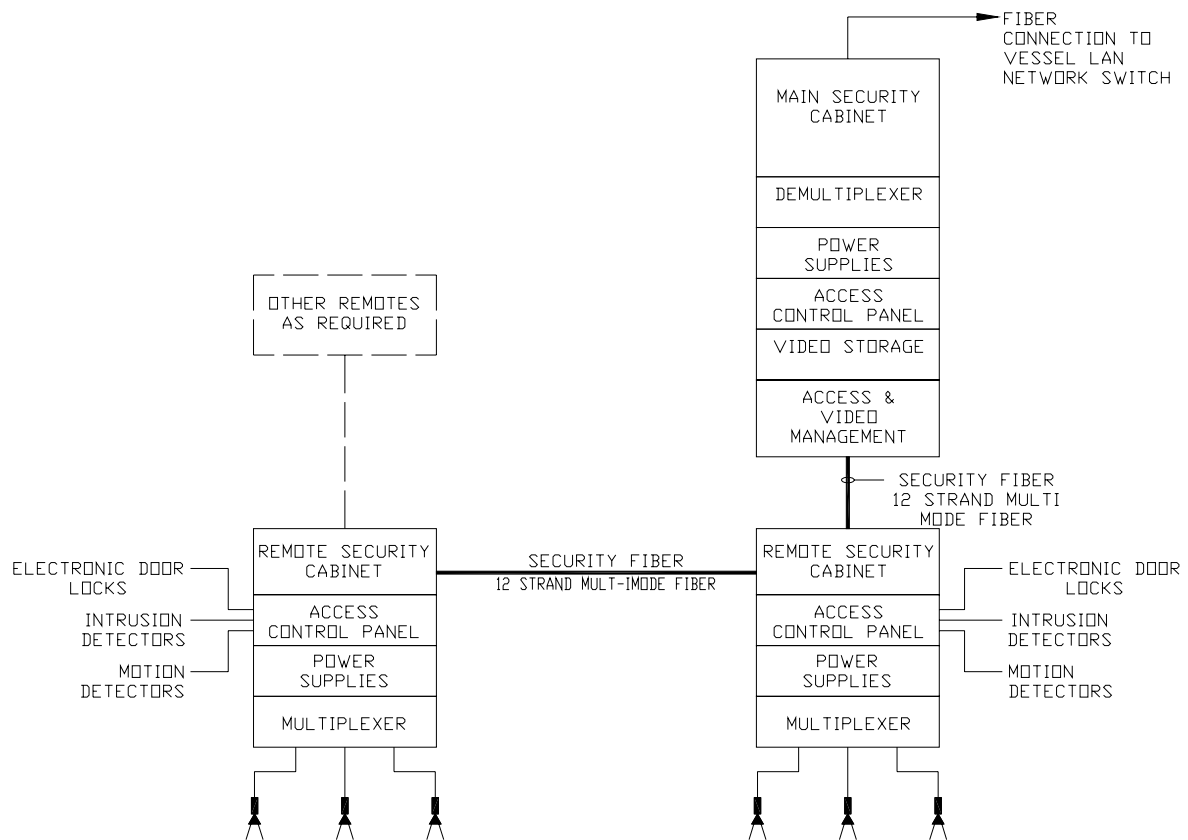


FIGURE 95-1
Security Network Block Diagram

The main security rack and the remote security cabinets shall contain power supplies to provide power for the installed security equipment that is connected to the respective panels. All of the security equipment is required to be powered from the Emergency Power Bus through Un-interruptible Power Supplies (UPS). The 110 Vac UPS devices should be sized to provide power from loss of normal source to pick up of the emergency electrical load by the Emergency Diesel Generator or orderly shutdown of the security equipment, whichever is larger.

An “Access and Video Management” computer running the VIGILOS security software shall be used to control the Vessel security system and to communicate with the Vessel’s Super-LAN (See the *SUPER-LAN/ SECURITY & SURVEILLANCE/ WIRELESS OVER WATER INSTALLATION* Subsection in this Section of the Technical Specification). This is the only connection between the Vessel’s

business enterprises Super-LAN and the security LAN. Unless the Vessel Security System and Vessel LAN are “co-located”, this connection shall be via a fiber optic cable from the security system “Access and Video management” computer to a Vessel LAN network switch. Internal to the security system, all security traffic between remote security cabinets and the central security cabinet and “Access and Video Management” computer is to be carried by a 12-strand multi-mode fiber optic cable installed exclusively to support the Vessel Security System.

Cameras shall be either hooked up directly to a video storage device in the main security rack or to a multiplexer in a remote security cabinet. When a PTZ camera feeds it video through a remote security cabinet, the PTZ controller shall also be connected through the same remote multiplexer. In general to limit voltage drop and signal loss, cameras shall be connected to the closest remote security cabinet. Camera video shall be transmitted on RG-59 COAX.

95.5.1.5 WSF Vessel Super-LAN

The Vessel shall have a Super-LAN (Super-Local Area Network) and windows based work stations used for WSF business enterprises connected to the WSF Fleet-wide Standardized area network via a wireless link. The requirements and installation of this Vessel business enterprises Super-LAN are addressed separately in the *SUPER-LAN/ SECURITY & SURVEILLANCE/ WIRELESS OVER WATER INSTALLATION* Subsection in this Section of the Technical Specification. The security system, including access control entry, camera data, PTZ camera control, and other security services can be used/managed by an authorized user logged into a Windows™ work station on either the Vessel’s Super-LAN or from remote locations via the WSF Fleet-wide area network. The interface to allow security system interface from any windows based computer in the WSF system will be furnished as Owner - Furnished Equipment (OFE) by the VIGILOS security software.

95.5.2 Public Space Security Requirements

In general, areas accessible to the general public shall be viewable by cameras and shall have motion detection devices installed for use when the Vessel is out of service. 100-percent (100%) coverage of all public spaces is not practical due to shadow areas, stair towers etc. The security system camera layout shall obtain maximum video surveillance coverage with the minimum number of cameras. All normal Passenger and vehicle ingresses and egress must have 100-percent (100%) surveillance. Cameras shall be located to maximize their field of view and minimize the effects of lighting changes caused by sun and Vessel lighting.

Sufficient cameras shall be used to allow recognition of individuals and vehicles based on clothing, colors of auto, type of vehicle, mannerisms, etc.. At least one (1) camera shall be located on each Passenger boarding area to obtain facial recognition. System design should strive to minimize the number of cameras and meet all of the requirements (minimizing the number of cameras reduces the amount of video storage required).

95.5.2.1 Passenger Cabins

Passenger cabins require motion detection for nighttime use. Video surveillance coverage shall be as close to 100-percent (100%) of the cabin areas as practical. An installed camera with sufficient resolution to identify a person entering or exiting the door shall cover controlled access doors and critical keyed doors.

95.5.2.2 Weather Decks

Passenger accessible weather decks require motion detection and camera coverage. PTZ cameras used in conjunction with motion detectors are encouraged to minimize the number of cameras required. Motion detectors and other devices placed in the weather shall be of such design that they can be adjusted to minimize false alarms generated by birds and changes in weather.

An Infrared (IR) Camera with illuminator is required at each End of the Vessel to look over the stern of the Vessel for surveillance when the Vessel is in port. This camera shall have an effective range of at least 100 yards.

95.5.2.3 Upper Vehicle Decks

General camera coverage of Upper Vehicle Decks is not required however specific cameras maybe required to view critical access point to engineering spaces.

95.5.2.4 Lower Vehicle Decks Outboard of the Machinery Casing

Camera coverage of both outboard sides of the machinery casing on the Lower Vehicle Deck shall be provided. 100-percent (100%) coverage is not required. General surveillance video coverage around access and opening to machinery spaces is required. See WSF Drawing No. 8306-639-095-01 ~ *M/V SEALTH HOMELAND SECURITY PLAN* (latest revision) for sample coverage. Motion detectors shall be installed on the Vehicle Decks to be activated when the Vessel

1 is out of service. In addition a motion sensor across each Vessel vehicle loading
2 area shall be provided.

3 **95.5.2.5 Vehicle Decks Inboard of the Machinery Casing**

4 The area inboard of the machinery casing and the Vessel Ends shall be covered by
5 PTZ cameras. The PTZ cameras shall be mounted such that they can provide
6 recognition of vehicles, vehicle drivers, Passengers (if loading on the Vehicle
7 Deck), and bicycle riders as they board the Vessel. The cameras shall also be
8 capable of covering decks near amidships from the Port casing bulkhead to the
9 Starboard-casing bulkhead. These cameras shall be driven by motion sensors and
10 intrusion detectors to view critical access or areas where motion has been
11 detected. The normal default position of these cameras will be directed to the
12 open ends of the Vessel.

13 **95.5.2.6 Restrooms**

14 Security cameras **shall not** be installed in **any** restrooms.

15 **95.5.2.7 Stairtowers**

16 Motion detection is required in all stairtowers, but camera coverage is not
17 required.

18 **95.5.2.8 Elevators**

19 No motion detection or restrictions on the control of elevators car is required.
20 Cameras on Passenger Decks serviced by elevators shall be so arranged that they
21 view persons entering and exiting the elevator cars.

95.5.3 Hardware, Software, and Integration

For WSF Fleet-wide Security Standardization purposes, WSF has selected VIGILOS software to run the Homeland Security System. VIGILOS shall be used for software, integration services and system commissioning. VIGILOS offices are at 2030 First Ave, Suite 300; Seattle, WA, phone (206) 728 6464, FAX: (206) 728 6440, email rshuman@vigilos.com.

For WSF Fleet-wide Standardization purposes, HIRSCH is the manufacturer of the access control equipment selected for WSF security installations. ABSCO Alarm is the local HIRSCH representative. ABSCO Offices are at 7833 – 196th ST SW Ste. 101, Edmonds WA, phone (206) 387-166, FAX: (425) 771-4422.

95.5.3.1 Security System Equipment

TABLE 95-5 is a partial, informational representation of OFE security camera/detection equipment being installed on other WSF Vessels as of this writing. WSF realizes that technology in this field is rapidly changing and strives to have systems provided for the New 144-Auto Ferries to be “state of the art”. Therefore, the Contractor shall understand that some system equipment most likely will evolve between this writing and Phase III design. Minimum performance specifications for security devices placed on these Vessels shall meet or exceed those of the equipment listed in **TABLE 95-5** and the referenced amplification drawings. Equipment supplied by WSF and installed by the Contractor shall be similar to these with forward and backward compatible. Catalog cut sheets with technical performance data will be furnished by the WSF Representative for review. Data connection between devices shall be done in shielded twisted pairs. Each twisted pair shield shall be grounded at one (1) end only.

TABLE 95-5 REPRESENTATIVE OFE SECURITY SYSTEM EQUIPMENT		
Description	Manufacturer / Spec. Grade or Model	Remarks
CAMERA, FIXED, INTERIOR, EXTERIOR , w/ADJUSTABLE LENS	PELCO ICS110-CRV39A	LENS (<3mm TO >6mm)
CAMERA, FIXED, INTERIOR, EXTERIOR , w/ADJUSTABLE LENS, CLEAR DOME	PELCO ICS111-CRV39A	LENS (<3mm TO >9mm)
CAMERA, FIXED, INTERIOR, w/ADJUSTABLE LENS	PELCO ICS150-CRV39A	LENS (<3mm TO >6mm)
CAMERA, FIXED, INTERIOR, EXTERIOR , w/ADJUSTABLE LENS CORNER MOUNT	PELCO ICS200-CRV39A	LENS (<3mm TO >9mm)
CAMERA, PAN/TILT/ZOOM, EXTERIOR	PELCO SD53TC-PGSE0	STAINLESS STEEL
PAN/TILT/ZOOM CONTROLLER, 4-PORT	CONTROL 98751-2	
CAMERA, FIXED, COLOR	PELCO CC3751H-2	
CAMERA, INFRARED, FIXED, EXTERIOR	PELCO MC3651H-2	
INFRARED ILLUMINATOR	CANTRONIC CSI-IR100m30N	
MOTION DETECTOR	SENTROL AP669	
MOTION DETECTOR	SENTROL 6187CTX	
MOTION DETECTOR	BOSCH OD850	
INTRUSION DETECTOR	SENTROL 2505-A	

TABLE 95-5, cont'd REPRESENTATIVE OFE SECURITY SYSTEM EQUIPMENT		
Description	Manufacturer / Spec. Grade or Model	Remarks
ELECTRONIC DOOR LOCK W/ ID, REX, CARD READER - CYLINDRICAL	BEST LOCK 83KW7DDEU14PHSTK626S HMAR	
ELECTRONIC DOOR LOCK W/ ID, REX, CARD READER - CYLINDRICAL	BEST LOCK 83KW7DDEU4PHSTK626SH MAR	
3X4 KEY PAD	ESSEX KTP-163-SN	
AUDIBLE/VISUAL ALARM	FEDERAL SIGNAL LP7-18-30C	
ACCESS CONTROL PANELS WITH ENCLOSURE, BHD MOUNTING	HIRSCH DIGI*TRAC M8N	
FIBER MULTI DROP INTERMEDIATE TRANSCEIVER	IFS D-2315	
NETWORK SWITCH	LINKSYS EF3116	
MULTIPLEXER / DEMULTIPLEXER	IFS VT/VR7820-2DRDT	

1 **95.5.4 Controlled Access**

2 Controlled Access Spaces are defined as areas where Crew is permitted, but Passengers
3 may not enter without Crew escort. There are three (3) types of controlled access
4 depending on the risk associated with entry into the space. For low risk spaces such as
5 Crew Staterooms, Cleaning Gear Lockers and storerooms keyed access shall be
6 permitted. Door lock and key requirements are provided separately.

Tee wrenches required to open deck hatches used for emergency exit from machinery spaces and for access to the Steering Gear Rooms shall be locked into the bulkhead holder. Padlock and key requirements are provided separately in Section 21 of the Technical Specification.

95.5.4.1 Spaces Requiring Intrusion Detection

Sensitive and mission critical spaces such as Steering Gear Rooms, emergency escape trunks, fan rooms, electrical equipment rooms, maintenance access into machinery spaces, fueling station, and the Emergency Diesel Generator Room shall have keyed access, which also include intrusion detection on the access point.

95.5.4.2 Critical Access Spaces

Normal entrances to the Pilothouses, Engineering Control Station (EOS), Engine Rooms, Motor Rooms, and the security equipment room (Security Office) are required to have WSF ID/Prox Card operated electronic door locks, card reader, keypad, and camera mounted to permit facial recognition of the person attempting entry. Controlled access point shall be equipped with the following features: electronic door lock, Prox Card reader, keypad, intrusion detector, Request For Exit (REX) device, and an audible/visual alarm. A enclosure is required to interface these devices with the access control system and the main security cabinet. **FIGURE 95-2** attached to the end of this Section of this Technical Specification provides a representative picture illuminating the salient features of how this equipment interfaces together. The facial recognition camera operates independently of the access control system and is integrated by the VIGILOS software at the main security cabinet.

95.5.4.3 Weather Deck Stairs Control

Stairs up to the deck areas where Passengers are not permitted shall be enclosed so they can be controlled by an access control system. The enclosures shall be so constructed that going around, under, or over to gain access to the restricted area cannot easily circumvent them. The enclosures shall be sized and arranged such that it is possible to maneuver a "Stokes Litter" from the restricted space out through the access control point.

95.5.4.4 Cameras for Facial Recognition

Cameras shall be installed at critical access control points to permit remote facial recognition of a person at the entrance. These cameras can either be dedicated exclusively to facial recognition or combined with other functions.

95.5.5 Testing

The security system shall be tested in phases of the installation. The Contractor shall develop Test Memorandums (Procedures) for all Security System Testing to meet the requirements of Section 101 of the Technical Specification. After cabling is installed it shall be tested in accordance with the requirements of Section 101 of the Technical Specification and as follows:

- Twisted copper pair shall be tested for shorts, opens, intermediate faults, polarity between conductors, and polarity between conductors and shield if cable has an overall shield.
- RG-6 coax cabling shall be tested for shorts, opens, and intermittent faults between conductors and shield.
- Conduct end-to-end test including power meter light source and Optical Time Delay Reflectometer (OTDR) test on all fiber optic cable. Perform OTDR measurements as required by Appendix – H of EIA/TIA-568-A (Reference (95J)).

Copies of completed Test Memorandums of the above test results shall be provide to WSF for review and approval. See Test Memorandum requirements in Section 101 of the Technical Specification.

After devices have been installed and connected to the HIRSCH access control panels, the entire system, including access control features, motion sensors, intrusion detectors shall be tested with the HIRSCH “Velocity” testing program. A copy of these results shall be provided to WSF for review and approval.

Video cameras, video feeds and control of PTZ camera shall be conducted from the central security control camera. These tests shall be witnessed to the satisfaction of the WSF Inspector.

At the conclusion of the above installation test, VIGILOS shall be contracted to perform the installation of and final connections to the “Front End” computer and commission the Vessel security system.

1 **95.6 CIRCUIT "CCTV"**

2 Design, provide, and install a video system using the methodology in WSF Drawing
 3 No. 8110W-139-95-01 ~ *I.C. SYSTEMS EQUIPMENT LAYOUT* for Jumbo MKII Vessels
 4 that will provide the video coverage as set forth in **TABLE 95-6** below:

TABLE 95-6		
CIRCUIT "CCTC" SYSTEM CAMERA DISTRIBUTION		
Qty	Space	Type
1 ea.	Steering Gear Rooms	6mm lens, fixed horizontal location
1 ea.	Reduction Gear Rooms	3mm lens, fixed horizontal location
4 ea.	Engine Rooms	6mm lens, fixed horizontal location
1	No. 3 SSDG Acoustic Enclosure	6mm lens, fixed horizontal location
1	No. 1 End Mast, looking toward stacks (for smoke observation)	10mm lens, fixed horizontal location
1	End No. 1 Vehicle Deck	6mm lens, fixed horizontal location
1	End No. 2 Vehicle Deck	6mm lens, fixed horizontal location
1	Elevator Car No. 1	6mm lens, fixed horizontal location
1	Elevator Car No. 2	6mm lens, fixed horizontal location

5 **NOTE:** The Circuit "CCTV" system shall be independent from the Homeland
 6 Security camera system.

7 Sequencer/controllers and video monitors shall be located in the EOS, two (2) monitors in
 8 EOS. Video signals shall be distributed in the following manner:

- 9 1. All Circuit "CCTV" video systems shall be available (viewable) in the EOS only.
 10 The distribution of video signal in EOS shall be by End-of-Vessel. That is, all
 11 cameras on the End No. 1 of the Vessel will be viewed at one (1) monitor and all
 12 cameras on the End No. 2 of the Vessel will be viewed at the second monitor.

2. The smoke observation camera shall be located on the End No. 1 main mast at a height and orientation sufficient to provide clear visual observation of emissions from the diesel exhaust stacks in the midship Navigation Bridge Deck area. This camera shall have a 10mm lens and shall be equipped with a heater element.

For bidding purposes, the Contractor shall provide a WSF approved system design and installation, to include all cameras, servers, monitors, switch panels, power supplies, cable, wireways, foundations, penetrations, hangers, and ancillary parts and components to produce a complete and operable *Circuit "CCTV"* system.

Approved camera locations shall suit the Contractor's approved Vessel design. Final location shall be the responsibility of the Contractor and shall provide the most complete view of the space being surveilled. Final location of cameras shall be subject to approval by the WSF Representative.

Final location of cameras shall be the responsibility of the Contractor and shall provide the most complete view of the space being observed. Final location of cameras shall be subject to review and approval by the WSF Representative.

Electrical power for this video system shall be from the Vessel's normal electrical power distribution system. Electrical power will be installed in a "daisy chain" style from camera to camera. Each camera requiring a 120 Vac/24 Vac transformer will have the transformer placed adjacent to the camera location in a weather tight box. Electrical power will be hard wired into the transformer primary. Secondary power from a transformer to the camera will be hard wired inside the transformer enclosure. "Outlet" type connections **shall not** be acceptable on transformer hookups. Transformers shall be fused on the primary side, both legs. Cable from the power source to a transformer primary shall be LSDSGU-9, or IEEE Std 1580-2001 appropriate cable, and from the transformer secondary to the camera shall be LSDSGU-4, or IEEE Std 1580-2001 appropriate cable. Electrical power for each system in the EOS will follow the same distribution pattern; daisy chained receptacles and transformers at the location of the video controllers, monitors and video distributors.

95.7 SUPER-LAN/ SECURITY & SURVEILLANCE/ WIRELESS OVER WATER INSTALLATION

95.7.1 General Requirements

The Contractor shall provide for, as part of his bid, coordination services, schedule, material, and support of all major component OFE electronic contractor required set up, light off, adjustment, and testing of all LAN system equipment. Assume fifteen (15) days, **after** all Shipyard provided equipment and material is installed, operational,

satisfactorily tested, and approved by the WSF Representative, for set up, light off, and adjustment testing for each Vessel. All system coordination services shall be identified and scheduled as part of the *Master Construction Schedule (MCS)* Subsection in Section 100 of the Technical Specification.

WSF Drawing No. 8301-661-094-01 (*latest revision*) represents an antenna arrangement for the M/V ISSAQUAH amplifying the methodology acceptable to WSF.

95.7.1.1 Work Scope Clarification

To facilitate Shipyard understanding as to areas of responsibility and expectations for the installation of the Super-Lan/ Security & Surveillance/ Wireless Over Water Installation, to assist in bidding purposes, and production coordination to meet the communication and cooperation requirements as set forth in the *OWNER-FURNISHED EQUIPMENT, MATERIAL, SERVICES, AND INFORMATION* Subsection in Section 1 of the Technical Specification, the following work scope clarification is set forth:

OFE #1 (Shipyard Supplied Telecommunications Subcontractor)

1. Provide all labor, equipment and materials not indicated as OFE on **FIGURE 95-2** attached to the end of this Section of this Technical Specification provides which depicts a representative picture illuminating the salient features of how this equipment interfaces together. Provide all labor, materials, and equipment to install all OFE equipment.
2. In conjunction with WSF Inspectors and WSF Information Technology (IT) personnel, the Shipyard shall provide for the time required to perform the Work and cable routing throughout the Vessel on the Master Construction Schedule.
3. Inspect the Shipyard installed fiber and copper cables, equipment, and materials with WSF Inspectors and WSF IT personnel on a regularly scheduled basis to provide input on progressing of the Work and the quality of the installation.
4. Provide breakout kits and install inside the enclosures to Shipyard pulled fiber optic cables. Provide fusion splice trays inside the enclosures to stabilize the individual strands to prevent breakage due to vibration.

- 1 5. Provide ST[®] connectors. Cleave the fiber, polish the ends and install
2 connectors (“connectorize”) on six (6) of twelve (12) strands in each fiber
3 optic cable. Connect to patch panels with the ships cables being on the
4 stationary side of the panels. The remaining six (6) strands shall be
5 “spared” out.
- 6 6. Provide/complete label card in patch panels, keyed to drawings developed
7 in Item 10 below.
- 8 7. Test fiber optic cable at the patch panels with OTDR to ensure cable meets
9 manufacturers specifications. Compare results to the Shipyard provided
10 Installation Report. Discrepancies shall be noted and the location of the
11 problem determined. Corrective action/responsibility shall be determined
12 by the WSF Representative after consultation with all parties.
- 13 8. Provide and install RJ-45 connectors and mounting boxes of the type/style
14 (flush/surface mount, single/multi-port) and color in the locations
15 designated by the WSF Representative.
- 16 9. Test copper cable with a power meter to ensure its integrity and provide a
17 report. Corrective action/responsibility to be determined by all parties for
18 any discrepancies.
- 19 10. In conjunction with WSF (**OFE #2**), provide drawings with a complete
20 Bill of Materials and indications of which strands were actually
21 terminated, which are spares and which port they are connected to in the
22 patch panel. A similar drawing effort shall be made for the cell phone and
23 the LAN.
- 24 11. Testing and commissioning of the work shall be considered complete at
25 the patch panels in the enclosures for the fiber cables and at the wall jacks
26 (LAN and cell phone) in the designated spaces for the copper cables.

27 **OFE #2** (*WSF OIT/Electronics Subcontractor*)

- 28 1. Will provide ST-ST Patch Cords to connect the patch panels to the
29 network switches. WSF (**OFE #2**) will provide connections from the
30 network switches to the radios and UPSs’. WSF (**OFE #2**) will add
31 connectors to the coax cable and the antennas. WSF (**OFE #2**) will
32 connect the copper to the network switches. WSF (**OFE #2**) will connect

- 1 the VIGILOS front end appliance to the patch panel. Will connect the
2 Electronic Keyboxes to the appropriate Network Switch.

3 **OFE #3 (WSF Telecommunications Subcontractor)**

- 4 1. Will provide equipment and labor to complete the Passenger Wi-Fi® or
5 Wireless Over Water (WOW) upon completion of the Shipyard Work.

OFE #4 (WSF Security Subcontractor)

1. Will provide equipment and labor to complete the Surveillance and Security installation at a future date.

Shipyard Termination/Responsibilities

Shall provide the following:

1. Schedule Work with WSF and its' subcontractors on the Master Construction Schedule to provide timelines when Work is to be started and completed. It is estimated that two (2) man-weeks (to be accomplished in one (1) man-week) will be required to complete Shipyard (OFE #1) Work. Shipyard (OFE #1) Work should start no later than two (2) weeks prior to delivery. Develop and provide cable routing for fiber optic and Cat 5e cables with WSF and its' subcontractors in accordance with the approved Low Voltage Wireway drawings.
2. Provide and install foundations, weldments, MCTs, stuffing tubes, and ancillary hot work for all WSF (OFE #2) and (OFE #3) equipment.
3. Perform an Acceptance/Pre-Installation Test with an OTDR on the fiber optic cables (while still on the reel or spool) and compare to the manufacturer's specifications. Provide a written report of findings to the WSF Representative within five (5) days of completion of the Acceptance/Pre-Installation Test.
4. Pull fiber optic and Cat 5e cables in agreed upon wireways/stud runs into enclosures or approximate locations of wall jacks. Cables shall be concealed behind bulkhead linings, sheathing, joiner systems or ceilings in spaces that are outfitted in this manner. Fiber optic cables shall be left with a minimum of twenty (20) feet of length at each enclosure in the original sheathing. Three (3) feet is for installing the breakout kit in the enclosure and the remaining amount is for a service loop (inside the enclosure) for one (1) complete "spare" future termination.
5. Provide WSF approved cable tags at exit/entrances to all equipment/enclosures and at all deck and bulkhead penetrations for fiber and copper cables. Cable tags shall be keyed to match the WSF/Shipyard developed drawing.

6. Provide and install cable and power to the UPSs from the distribution panels.
7. Provide and install coax cable from the radio enclosures to the antenna foundations. End seal spare lengths of coax not being used.
8. Provide banding of all cables in wireways using stainless steel bands with flexible channel rubber between the cable and the banding material.
9. Provide packing of all MCTs to maintain integrity of the bulkhead/deck penetrated. Add structural fire protection to cable as required.
10. Perform Installation Test with an OTDR on the fiber optic cables and provide a report to WSF. Compare this report to the Pre-Installation Report. The results should compare favorably to the manufacturer's specifications. If there are deviations, find the error source and correct. Retest to demonstrate specification compliance.
11. Test copper cables (Cat 5e) with a power meter to ensure its integrity and provide a report. Corrective action/responsibility to be determined by all parties for any discrepancies.
12. Turn over to WSF (**OFE #2**) and (**OFE #3**) subcontractors' for their scope effort.
13. Provide all other testing as required by Section 101 and all other Sections of the Technical Specification.

95.7.2 Installation

Design and provide a Super-LAN/ Security & Surveillance/ Wireless Over Water Installation with equipment, cabling, and outlets that will provide LAN coverage hook ups generally as shown on **FIGURE 95-2** attached to the end of this Section of this Technical Specification provides a representative picture illuminating the salient features of how this equipment interfaces together. **FIGURE 95-2** represents those salient features acceptable to WSF, and has included this FIGURE as part of this Section of the Technical Specification.

The system shall incorporate certain Owner - Furnished Equipment (OFE) which for WSF Fleet-wide Standardization Purposes are required for system interface with the existing WSF systems. The subject drawing delineates those items which are OFE, and

those items to be provided by the Contractor. The Contractor shall provide all installation, equipment, and all other ancillary equipment required to produce a complete and operable system, except as noted in **FIGURE 95-2**.

95.8 WIRELESS INTERNET SERVICES SYSTEM

WSF is currently system testing for onboard WSF Standardized Internet services through Parsons Transportation Group, Inc. The system will permit Passenger computer interface with the Internet, on a subscription basis, via wireless internet antennas throughout the Passenger areas. Once the system has been designed, selected, tested, and accepted, WSF will provide technical information and documentation for the installation under an Addendum during Phase II of the Contract. The wireless system will connect through the SuperLAN System as set forth in the *SUPER-LAN/ SECURITY & SURVEILLANCE/ WIRELESS OVER WATER INSTALLATION* Subsection in this Section of the Technical Specification. At this writing, WSF does not know the scope of Contractor's involvement in this installation.

95.9 TELEPHONE SYSTEM CIRCUITS

95.9.1 Circuit "J", PABX Telephone System

Provide and install as specified a complete WSF Marine Vessel Private Automatic Branch Exchange (PABX) telephone system. Final location of a combined PA System Main Amplifier/Central Exchange Cabinet, and remote control stations shall be approved by the WSF Representative during the Phase II Design stage of Work based upon the Contractor's design. The Contractor shall provide all interconnecting cable as set forth in this Section and the *CABLE INSTALLATION* Subsection in Section 87 of the Technical Specification (minimum of 18 gauge) isolators, interfaces, antennas, foundations, mounting brackets, and other ancillary equipment as required to implement a complete and functional telephone and general communications system.

The OFE combined PA System Main Amplifier/Central Exchange cabinet shall be installed. Provide 120 Vac power from the Emergency Generator Room Final Emergency Power Distribution System to the OFE PABX Central Exchange cabinet. WSF has provided an OFE Central Exchange cabinet wiring diagram as part of Reference (95D). WSF Drawing No. 8301-642-095-02 (*latest revision*) represents a cellular phone installation for the M/V ISSAQUAH amplifying the methodology acceptable to WSF.

The OFE Central Exchange will be capable of handling a minimum of fifty (50) remote telephones or other communications devices, as identified below. It shall be capable of connection or interfacing to standard shore side telephone lines and cellular telephones.

The cellular interface will be programmable in such a way as to provide dedicated ringing of incoming calls to specific telephone instruments and yet still allow all authorized telephone instruments to have access to available cellular lines for outgoing calls. There will be four (4) cellular lines interfaced with the Dial Telephone System into a Contractor provided WSF system compatible TELULAR PHONECELL 4M transceiver, or equal installed into a Shipyard provided 19-shelf. Selection of the transceiver shall require approval by the WSF Representative.

The OFE Central Exchange will have internal battery backup of program memory to allow program retention during loss of power and for extended shutdowns for a period of up to three (3) months. The exchange will be fully equipped with power amplifiers.

The OFE combined PA System Main Amplifier/Central Exchange cabinet shall be a wall mounted, drip proof, temperature regulated, marine enclosure.

The OFE Central Exchange and all OFE telephones and interface components shall be by the same manufacturer, and shall be solid state. All Contractor provided wiring used in interconnecting the various components of the telephone system shall use cable and wiring of the type recommended by WSF. All telephone stations shall have minimum of 2-pair cable run to each station direct from PABX cabinet.

The Contractor shall provide all interconnecting wiring, final connections, junction boxes, mounting hardware, foundations, and other ancillary equipment as required to implement a complete and functional PABX Exchange System installation.

This circuits "call" indication shall also be provided on an Alarm Indication Light Bar, see the *Multi-colored Alarm Indication Light Bar* Subsection and **TABLE 95-4** in this Section of the Technical Specification.

95.9.1.1 System Capabilities

The system will be programmable for its various functions. The system will have the following capabilities:

1. Public Address function (General & Group Call)
2. Hands free talk-back and loud hailing
3. Voice paging, both group and general
4. Programmable priority and access levels

1 5. Call Transfer

2 6. Conference mode

3 7. External communications interface capability

4 8. Selective call routing of incoming calls

5 The system shall utilize microprocessor technology with stored program control.
6 The various features, capabilities and telephone number assignments shall all be
7 implemented within the system by simply programming the central exchange.
8 Assignments to groups for group paging and conference calling shall also be a
9 programmable function.

10 The system shall have voice duplex operation at all stations.

11 **95.9.1.2 Individual Telephones**

12 Each OFE telephone or communications device shall have the features and
13 characteristics as set forth in **TABLE 95-7** below:

TABLE 95-7 Vessel Telephone System Features & Characteristics									
Sta. No.	Location	Priority Level	Desk (D) Wall (W) Flush (F)	WT/ Splash Proof	Hand/ Head Set	Priv. Featr.	P.A. Spkr.	Noisy Area	Remarks
11	No. 1 PH	3	D/F		## See End of Table				Access Level 3 10 # speed dial
12	No. 2 PH	3	D/F		##				Access Level 3 10 # speed dial
13	EOS	3	D		##	✓			Access Level 3 10 # speed dial
14	Master's SR	3	D		Hand	✓			10 # speed dial
15	Ship's Office	3	D		Hand	✓			10 # speed dial
16	Chief Mate's SR	1	D		Hand	✓			10 # speed dial
17	Staff Chief Engr's SR	3	D		Hand	✓			10 # speed dial
18	1 Officer SR	2	D		Hand	✓			10 # speed dial
18	Asst. Chief's SR	1	D		Hand	✓			10 # speed dial

TABLE 95-7, cont'd									
Vessel Telephone System Features & Characteristics									
Sta. No.	Location	Priority Level	Desk (D) Wall (W) Flush (F)	WT/ Splash Proof	Hand/ Head Set	Priv. Featr.	P.A. Spkr.	Noisy Area	Remarks
27 A	No. 1 Picklefork Port	1	W	WT	Hand	✓			W/ enclosure
27B	No. 1 Picklefork Stbd	1	W	WT	Hand	✓			W/ enclosure
28 A	No. 2 Picklefork Port	1	W	WT	Hand	✓			W/ enclosure
28B	No. 2 Picklefork Stbd	1	W	WT	Hand	✓			W/ enclosure
29 A	Small Galley	0	W	SP	Hand				Passenger Deck
30	Security Office	3	D		Hand	✓			10 # speed dial
31	Purser's Office; First Aid Room	1	D		Hand	✓			10 # speed dial
32	Sun Deck Day Room	0	W		Hand				10 # speed dial
33	Passenger Deck Day Room	0	W		Hand				10 # speed dial

TABLE 95-7, cont'd									
Vessel Telephone System Features & Characteristics									
Sta. No.	Location	Priority Level	Desk (D) Wall (W) Flush (F)	WT/ Splash Proof	Hand/ Head Set	Priv. Featr.	P.A. Spkr.	Noisy Area	Remarks
34	Vehicle Deck Crew Shelter	0	W		Hand				10 # speed dial
35	Engineer's Day Room	0	W		Hand				
36	Fueling Station (analog phone)	0	W		Expl.				With remote ringer and beacon
37	Chief Engineer's Office	3	D		Hand	✓			
38	Engineer's Store Room	0	W	SP	Hand				
39	Sewage Transfer Station #1	0	W	WT	Hand				
40	Sewage Transfer Station #2	0	W	WT	Hand				
41	Engineer's Workshop	0	W	SP	Hand				

42	Emer. Generator Room	0	W	SP	Hand		✓	✓	
<p align="center">TABLE 95-7, cont'd</p> <p align="center">Vessel Telephone System Features & Characteristics</p>									
Sta. No.	Location	Priority Level	Desk (D) Wall (W) Flush (F)	WT/ Splash Proof	Hand/ Head Set	Priv. Featr.	P.A. Spkr.	Noisy Area	Remarks
43	Engine Room #1	0	W	SP	Hand		✓	✓	
44	Engine Room #2	0	W	SP	Hand		✓	✓	Locate in close proximity to fuel manifold
45	Elevator No. 1	3	W/F						Hands free in the Elevator
46	Elevator No. 2	3	W/F						Hands free in the Elevator
47	Passenger Deck Emer. Gear Locker	3	W	SP	Hand				
48	LVD Emer. Gear Locker	3	W	SP	Hand				

1 ## Provide provisions for plug-in commercially available cordless telephones for these
2 locations.

3 The OFE telephones located at Station No.s 11, 12 and 13 (No. 1 Pilothouse, No.2
4 Pilothouse and the EOS) shall include the ten (10) station, one-button, direct dial
5 feature. This feature will be programmable, and may be used for purposes other

than dialing another station, such as initiating a group page. The OFE telephones located at Station No.s 11, 12 and 15 will be programmed to allow access to two (2) particular cellular/shore lines. Those cellular/shore lines will not be accessible to any other telephones on the system. The OFE telephones at Station No.s 13, 18 and 37 will be programmed to access one particular cellular/shoreline. That cellular/shoreline will not be accessible to any other telephones on the system. The remaining cellular/shore line will be accessible to the Staff Chief's Office computer/modem/facsimile only.

The OFE telephones at Station No.s 42, 43, and 44 (Emergency Diesel Generator Room, Engine Room No. 1 and Engine Room No.2) shall be mounted in a sound dampening booth, VINGTOR Mini-box, or equal. These same three (3) stations shall include a call signaling light in the signal column. The light shall be visible throughout the space, and shall be coordinated with other beacons and signaling devices within the space to provide a distinctive color and lighting pattern to prevent confusion between signals. The typical station will have digit keys for 0 through 9, built in loudspeaker for individual or paging, and volume control. It is intended to mount the Sound Powered Phone and the PBX Phone for the Emergency Diesel Room in a single booth.

95.9.2 Temporary Shore Side Telephone Lay-Up Circuit

Provide two (2) temporary shore side telephone receptacle connection boxes with a RJ-11 connector, one (1) outboard on each End of the Vessel near the bulwark. The RJ-11 connector receptacles shall be in watertight jack type boxes complete with screw-on jack cover, or equal. These telephone connections will be used by WSF for hooking up temporary telephone service in the EOS and Staff Chief Engineer's Office during shipyard lay-ups. Provide a RJ-11 connector receptacle on both spaces, and wire so that telephone service connected to either End of the Vessel connects to these two spaces. Location of all connection boxes shall be approved by WSF.

95.10 ONBOARD EFS/RCS KIOSKS

Provide installation of two (2) OFE WSF Electronic fare system (EFS)/Revenue Collection System (RCS) Kiosk equipment cabinets, one (1) on each end of the Passenger Deck as shown on the Electrical Equipment Arrangement drawing and as directed by the WSF Representative during the Phase II Technical Proposal Phase. The OFE WSF EFS/RCS Kiosks are multi-function machines which can provide for SmartCard recharge, WSF only media replenishment, ticketing, account balance verification, real time credit card acceptance, and other capabilities under development by WSF. The Contractor shall provide for the installation of these OFE equipment cabinets.

Provide each kiosk with a dedicated hard wired Super-LAN connection, and clean 120 Vac power to support an internal UPS power supply. Provide all foundations, penetrations, junction boxes, cable, hangers, wireways/stud runs, and associated installation materials to produce a complete and operational installation. Installations shall meet all the requirements in this Section and Sections 2 and 87 of the Technical Specification.

The Contractor shall provide for, as part of his bid, coordination services, schedule, material, and support of the WSF Information Technologies Technician required set up, light off, adjustment, and testing of all communication system equipment **after** all Shipyard equipment and OFE provided equipment and material is installed, operational, satisfactorily tested, and approved by the WSF Representative, for set up, light off, and adjustment testing for each Vessel. All system coordination services shall be identified and scheduled as part of the *Master Construction Schedule (MCS)* Subsection in Section 100 of the Technical Specification.

95.11 HEATING AND VENTILATION CONTROL SYSTEM

Design and provide a Heating, Ventilation and Air Conditioning (HVAC), Control System that meets the requirements as set forth in Sections 12 and 64 of the Technical Specification.

95.12 SPARE PARTS AND INSTRUCTION MANUALS

Provide a list of recommended spare parts and special tools for those items which are Contractor furnished, together with parts lists and instruction manuals necessary to maintain and service provided equipment and accessories in accordance with the requirements in Sections 86 and 100 of the Technical Specification.

95.13 TESTS, TRIALS AND INSPECTIONS

ATTENTION: Prior to powering up any OFE interior communications cabinet, the Contractor shall present the completed installation to WSF for system and hook up checks. This check point shall be considered a major milestone hold point as defined in the *Major Production Milestone Hold Points* Subsection in Section 1 of the Technical Specification.

Tests and/or trials shall be in accordance with this Section and Section 101 of the Technical Specification.

Inspections shall be performed as defined in this Section and Section 1 of the Technical Specification.

1 **95.14 PHASE II TECHNICAL PROPOSAL REQUIREMENTS**

2 The deliverables required by Section 100 of the Technical Specification and the
3 Authoritative Agencies, shall be submitted during the Phase II Technical Proposal stage of
4 the Work in accordance with the requirements in Section 100 of the Technical Specification:

5 **95.15 PHASE III DETAIL DESIGN AND CONSTRUCTION REQUIREMENTS**

6 The deliverables required in Section 100 of the Technical Specification and the Authoritative
7 Agencies, shall be submitted during the Phase III Detail Design stage of Work in accordance
8 with the requirements in Section 100 of the Technical Specification:

9 All testing, inspections and certifications shall be provided to assist WSF in obtaining any
10 required FCC and other Authoritative Agencies licenses and approvals.

11 See Section 100 of the Technical Specification for additional requirements regarding
12 technical documentation.

(END OF SECTION)